

DUN'S REVIEW

and Modern Industry

A *Dun & Bradstreet* PUBLICATION

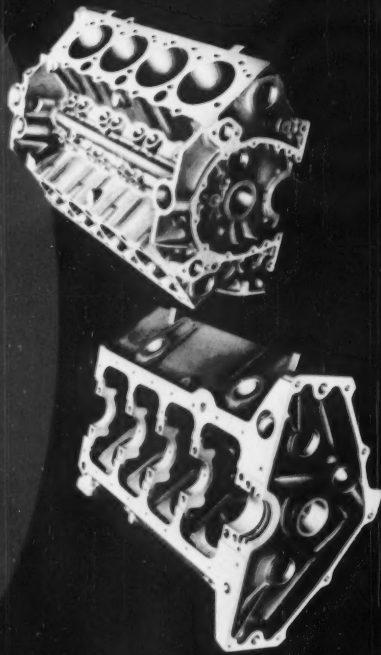
NOVEMBER, 1954

75 cents



THE ELECTRICAL FUTURE... PROFITS FROM SMALL
ORDERS... 14 RATIOS IN 24 WHOLESALE LINES

**350 Foot
Automation Line
Performs 555 Operations
on V-8 Cylinder Blocks**



Another Transfer-matic by Cross

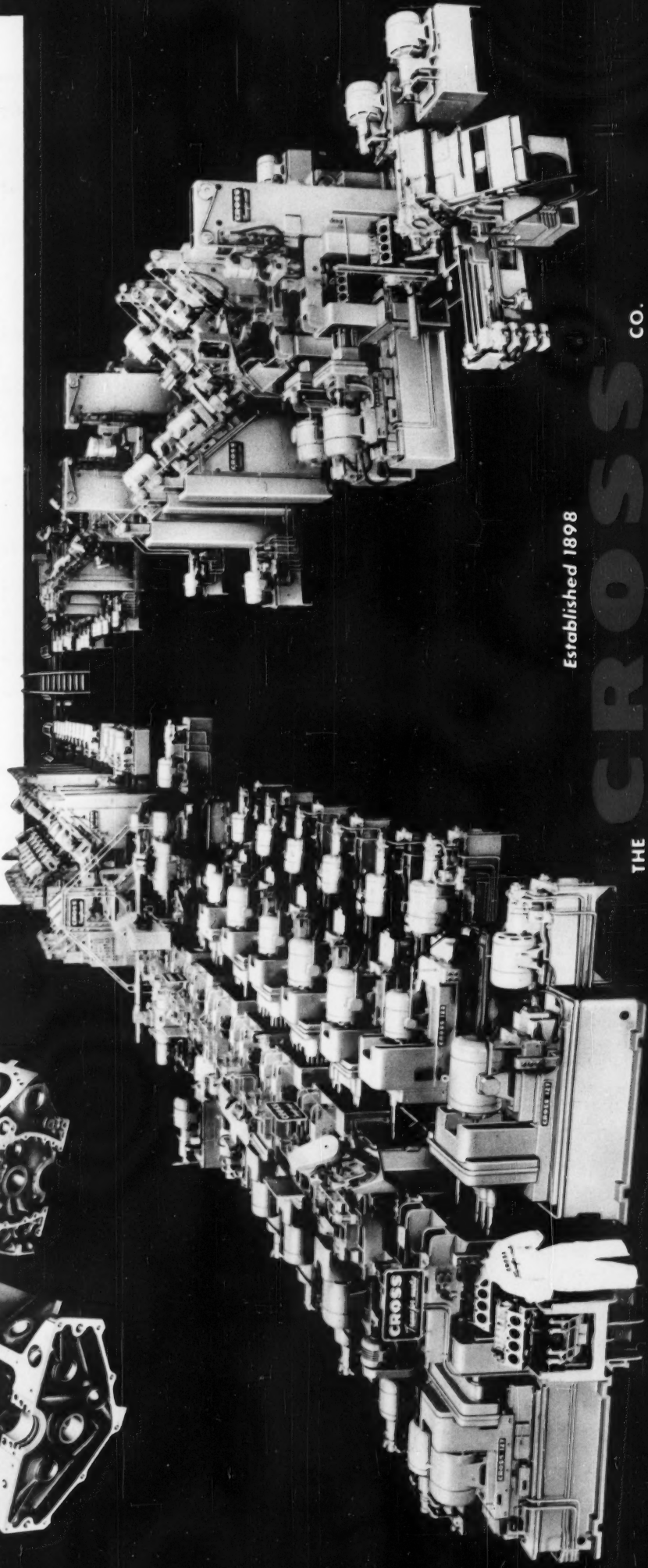
Economists predict that by 1960 America's production must be increased 40% over 1950 in order to maintain our present standard of living for the anticipated population at that time.

The only way to obtain such additional production is to improve the output of machine tools.

One answer is this mammoth Cross Transfer-matic designed to process V-8

cylinder blocks. It consists of 104 operating stations integrated into one complete production line. In addition to 555 machining operations, it performs 133 inspections and automatically marks rejected parts. It can machine as many as 100 cylinder blocks per hour with only one operator.

Cross engineers will be glad to show you details of this and other Transfer-matics or special machine tools.



Established 1898

CROSS
CO.
THE
DETROIT 7, MICHIGAN
Special MACHINE TOOLS



A United Air Lines DC-7 Mainliner

IMPROVED CUSTOMER SERVICE. United Air Lines uses its Western Union Private Wire System as a fast, efficient means of maintaining payload and reservation control. Centered in Denver, the system connects 323 stations in 66 cities and handles 100,000 messages a day. It enables United to keep an accurate running count of available space, reservations and cancellations for every flight throughout its 13,000 mile organization and to flash this information to any station.



Falstaff's New Orleans, La. Plant

COORDINATED MULTI-PLANT OPERATION. The Falstaff Brewing Corporation of St. Louis, Mo., knits together its wide-spread organization with a Private Wire System. Interconnecting their plants and offices in Missouri, Indiana, Nebraska, Louisiana and California, this fast, two-way service allows Falstaff to coordinate production schedules, sales and advertising programs, accounting and inventory information...and all other phases of their operation. Their communication costs have dropped 20% since the private wire was installed!



Campbell Steel's Warehouse at Corpus Christi, Texas

LOWERED OPERATING COSTS. The Campbell Steel Company of San Antonio, Texas, connected its San Antonio and Corpus Christi plants with a Private Wire System, thereby realizing a large reduction in overhead costs and inventory. Through the fast, accurate service of their private wire, they have consolidated credit, purchasing and scheduling departments into one city. They've cut their San Antonio warehouse inventory 50% while still providing top customer service.



MORE EFFICIENT SCHEDULING.

The Luper Transportation Company, Inc., a trucking firm of Tulsa, Oklahoma, uses a private wire system to connect their central office with terminals in other cities. The increased speed of company communications has allowed them closer control over their entire operation. Truck arrivals and departures at each station are known immediately and preparations can be made for rush pickups or deliveries... resulting in 100% utilization of their equipment.

HOW YOU CAN PROFIT FROM WESTERN UNION PRIVATE WIRE SERVICES!

The improved company communications provided by Western Union Private Wire Services will help your firm increase operating efficiency right down the line. In most cases, too, private wires result in immediate reductions in overall communication costs.

Shown here are just a few of the ways some present users have benefited from Private Wire Services.

If you are currently spending more than \$75 a month for communications, both oral and written, between any two points...

Ask yourself these questions:

- Do we need a permanent, printed record of incoming and outgoing communications...
- Would instantaneous, continuous contact between any two or more points—branch offices, warehouses, plants, etc....add to the efficiency of present operation...
- Has our business followed today's trend toward "decentralization"—spreading operations over a broader area...

- As in all other business purchases, do we want to take advantage of volume rates—this time in COMMUNICATIONS...

If your answer to any of these questions is "yes", you should investigate the efficiency and economy of a Western Union Private Wire System. For more information on what such a system can do for your business, send for "What You Should Know About Western Union Private Wire Services," a booklet covering all types and applications of private wire communications. No cost or obligation.

FREE BOOKLET tells what you should know about Private Wires and their application to modern business.

WIRE COLLECT
FOR YOUR
COPY TODAY.

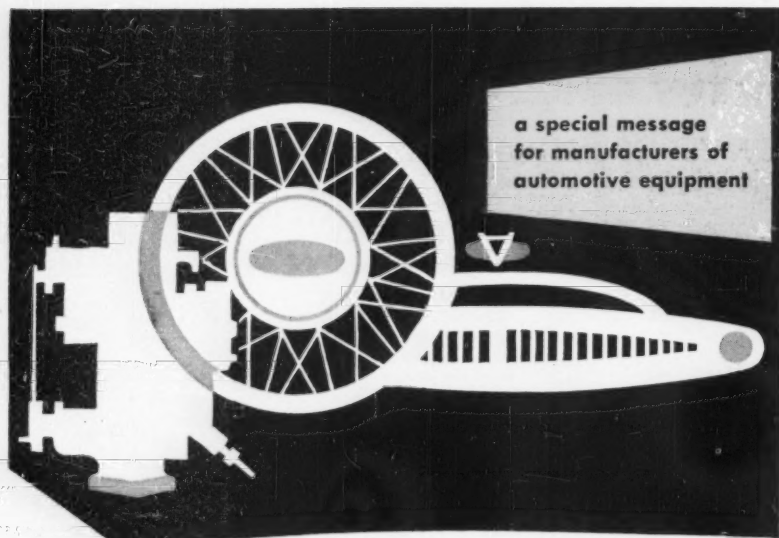
Just hand
this text
to your
secretary.

WESTERN UNION

PRIVATE WIRE SERVICES DEPT. D11
WESTERN UNION TELEGRAPH CO.
60 HUDSON STREET, NEW YORK, N. Y.

Please send, without obligation,
copy of Private Wire Booklet.

Name _____
Company _____ Title _____
Address _____
City _____ State _____



need a finish for low cost
corrosion protection or
showroom sparkle?

specify

IRIDITE®

Whether you're finishing non-ferrous parts for high corrosion protection, paint base, or for showroom sales appeal, you can be sure of low material and production costs and peak performance when you specify Iridite. Here's what you can do with Iridite:

● **ON ZINC AND CADMIUM** you can get highly corrosion resistant finishes to meet any military or civilian specifications and ranging in appearance from olive drab through sparkling bright and dyed colors.

● **ON COPPER**... Iridite brightens copper, keeps it tarnish-free; also lets you drastically cut the cost of copper-chrome plating by reducing the need for buffing.

● **ON ALUMINUM** Iridite gives you a choice of natural aluminum, a golden yellow or dye colored finishes. No special racks. No high temperatures. No long immersion. Process in bulk.

● **ON MAGNESIUM** Iridite provides a highly protective film in deepening shades of brown. No boiling, elaborate cleaning or long immersions.

AND IRIDITE IS EASY TO APPLY. Goes on at room temperature by dip, brush or spray. No electrolysis. No special equipment. No exhausts. No specially trained operators. Single dip for basic coatings. Double dip for dye colors. The protective Iridite coating is not a superimposed film, cannot flake, chip or peel.

WANT TO KNOW MORE? We'll gladly treat samples or send you complete data. Write direct or call in your Iridite Field Engineer. He's listed under "Plating Supplies" in your classified telephone book.

Iridite is approved under government specifications



ALLIED RESEARCH PRODUCTS
INCORPORATED

4004 06 E. MONUMENT STREET • BALTIMORE 5, MD

Manufacturers of Iridite Finishes for Corrosion Protection and Paint Systems on Non-Ferrous Metals, ARP Plating Chemicals.
WEST COAST LICENSEE: L. H. Butcher Co.

DUN'S REVIEW and Modern Industry

Your Stake in The Electrical Future.....31

ANNESTA R. GARDNER
Industrial Editor

New products, new markets, new ways to increase productivity—all these await your company in the electrical age. Here is what can be done right now to cash in on to-day's developments, and to get ready for opportunities-to-come in the years ahead.

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DONALD R. LONGMAN
Director of Market Research, Atlantic Refining Co.

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MARIAN C. MANLEY
Business Librarian, Newark (N.J.) Public Library

A library is generally considered to be the province of the scholarly. But in several communities to-day, the business man is learning that there is a library branch set up to meet his needs, whatever they may be. Here is an article describing the facilities offered.

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Subscription: \$5 a year in U.S.A. and Possessions, and Canada. Elsewhere \$10. Single copy, 75 cents. Please state title and employing company when subscribing.

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This magazine is indexed in the Industrial Arts Index, in the Public Affairs Information Service, and also semi-annually in an index available upon request to the publishers. . . . Member BPA, NBP, SBME, and MPA. . . . Printed in U.S.A.

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ROY A. FOULKE
Vice-President, Dun & Bradstreet, Inc.

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ALFRED G. LARKE
Employer Relations Editor

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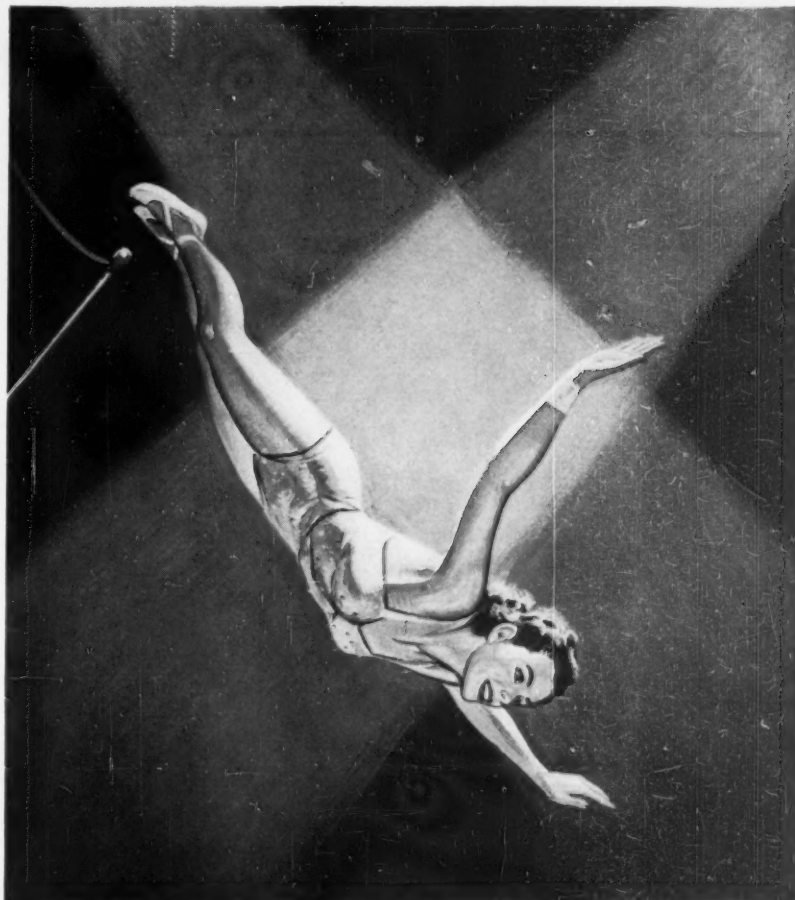
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New developments, products, and uses that can be of help to managements in many fields.

Published monthly by Dun & Bradstreet Publications Corporation. Publication office: 300 W. Adams Street, Chicago. Editorial, advertising, and subscription office: 99 Church Street, New York 8, N.Y., Digby 9-3300.

Correspondence generally should be addressed to the offices in New York . . . Manuscripts or other material for publication should be addressed to the Managing Editor in New York. Advertisers should send proofs and plates with copy instructions directly to R. F. Bogner, Operating Department, DUN'S REVIEW AND MODERN INDUSTRY, 350 East 22nd Street, Chicago 16. Advertisements to be set by publication must be sent with complete instructions to Production Department, DUN'S REVIEW AND MODERN INDUSTRY, 99 Church Street, New York 8, N.Y.

Safer than Slippery Flooring



This aerialist spinning high over the center ring *knows* she's taking a risk—but training warns her to be careful. However, every day workmen are killed or hurt falling on slippery floors that *look* safe but are treacherous underfoot. Best inexpensive insurance against these accidents is A.W. SUPER-DIAMOND—the floor plate with 40 slip-stopping traction points in every step. SUPER-DIAMOND is tough, rolled steel, with an exclusive raised-diamond surface that takes rugged wear and gives maximum foot safety in return. Specify SUPER-DIAMOND when you want the best buy in low-cost accident prevention. Easy to install. Simple to maintain. Write today for the new, free SUPER-DIAMOND Booklet SD-1.

A.W. SUPER-DIAMOND



Economy Rolled Steel Floor Plate
ALAN WOOD STEEL COMPANY
CONSHOHOCKEN, PA.

Other Products: A.W. ALGRIP Abrasive Rolled Steel Floor Plate
Plates • Sheet • Strip • (Alloy and Special Grades)

BUSINESS IN MOTION

To our Colleagues in American Business ...

Improve quality, reduce production costs — either or both. That is the aim of Revere in its relations with customers and prospects. Here is an example that is rather spectacular. It involves overlaying a silicon bronze gasket surface $2\frac{1}{2}$ " wide around the periphery of a 46-inch diameter, $2\frac{1}{2}$ " thick steel tube sheet for a large heat exchanger.

During a call on the manufacturer Revere was given the opportunity to see the overlaying operation. It was being done manually, by the gas-shielded tungsten arc method. Experience showed that the time required to complete the operation was from $6\frac{1}{2}$ to 7 hours. Included in the material cost was a full tank of argon, price about \$26.40. After the gasket surface was completed, it was machined, which sometimes revealed excessive iron pickup, caused by differences in welding speed or other operator variants. Sometimes there would be porosity, sometimes excessive hardness. Repairing these spots by re-welding meant that the surface had to be machined again.

The company in question is highly skilled, and seldom needs to call in people from outside. However, this difficult operation was of considerable concern because of the size of the contract and the extra costs involved. Revere was asked for its opinion. After studying the matter, it was suggested that the gasket surface could be done more quickly and uniformly by semi-automatic methods, using equipment already

available in the shop. The necessary strict details of procedure were developed in the Welding Section of Revere's Research and Development Laboratory at Rome, N. Y. so that we were able to prove the method. The customer's shop was then revisited and assistance given in setting up the equipment, which included a variable-speed welding positioner to rotate the tube sheet under a stationary head. On the first sheet overlaid by this gas-shielded metal arc process, the time required was 49 minutes.

Time thus was reduced by some six hours. Argon consumption was cut to about 25 cubic feet at a cost of about \$3, representing a saving of about \$23 in gas alone. Cost estimates of the two processes indicated a total saving of about \$50 per tube sheet. Since the manufacturer still had over one hundred of these heat exchangers to make before the contract was completed, total savings will amount

to about \$5,000, as a result of the better method.

It is interesting to note that no Revere materials were involved in this work. Nevertheless, Revere was glad to do it for an important customer, one who buys large quantities of our metals.

In these days it is more important than ever to hold costs down. Perhaps your suppliers have some special skills that you could use. No matter what you make, it would be wise to seek their collaboration on the matter of improving quality, reducing costs, or both



REVERE COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

Executive Offices: 230 Park Avenue, New York 17, N. Y.

SEE "MEET THE PRESS" ON NBC TELEVISION, SUNDAYS



ELECTIONS change no problems. Members of the eighty-fourth Congress will face the same old issues. Few of them will be resolved differently because of some changes in the personnel of the Senate and House. While there are many advantages in having party strength fairly evenly divided, the present situation could cause trouble only if rivalry takes the form of currying favor by such things as unwise tax reduction, by providing too much in the way of support for farm products, or by further liberalizing of a housing program that already is too liberal.

★ ★ ★ ★ ★

American business men have lived with an unstable world situation so long that they now give it no serious consideration in their planning. Washington is taking note of the pressure for less military and foreign aid spending. Further cuts in defense appropriations by the new Congress seem certain.

★ ★ ★ ★ ★

Foreign investment is lagging far behind other developments in the world economy. Officials of the International Bank for Reconstruction and Development and of the International Monetary Fund are worried. Treasury Secretary Humphrey, Chancellor of the Exchequer Butler, Economics Minister Erhard, and other stalwarts pointed out the importance to the free world of meeting capital requirements for sound projects.

★ ★ ★ ★ ★

Now that the elections are over progress on amendments to the Taft-Hartley Act may be expected. Changes in the law were not made at the last session because each of the parties preferred to have that act as an issue in the campaign.

★ ★ ★ ★ ★

Information reaching the Commerce Department indicates that disquieting developments last Summer in Indo-China prompted

considerable speculative buying which slowed down the inventory adjustment then underway. Reduction is proceeding again but officials think it could go further and be in the general interest.

★ ★ ★ ★ ★

Support for construction that will relieve highway congestion is general, but the proposal to raise \$50 billion additional by the sale of tax-free securities does not please officials who feel there are too many tax-free issues on the market already.

★ ★ ★ ★ ★

Automation in business and industry is prompting Defense and Labor Department officials to point out that higher education is becoming more important than ever. Trend of demand is not toward numbers, but toward quality of workers. Need for highly skilled workers is increasing rapidly. Use of complicated mechanisms made it necessary to revise upward the standards that must be met in the skilled categories.

★ ★ ★ ★ ★

While the agreement reached at the Nine-Power Conference in London is an old fashioned military alliance, which is a step away from unification, some are inclined to believe it is a more practical way of providing defense for western Europe. Doubt is expressed that unification would have made much progress under the EDC plan.

★ ★ ★ ★ ★

While 1954 is the second best year in the history of American business, it is now apparent that the people are not satisfied with the second best. The clamor is for new all-time highs. The curve of economic advance through the years has been a jagged line. No one expects it to be otherwise in the future, but the prospects are that the valleys in the future will be accepted less complacently than in the past.

During his past 40 years of reporting in and out of Washington, Paul Wooton has earned a respected position among his colleagues and with Government officials, both old and new. He is a Past President of the National Press Club, the Overseas Writers, the White House Correspondents' Association, and the Society of Business Magazine Editors.

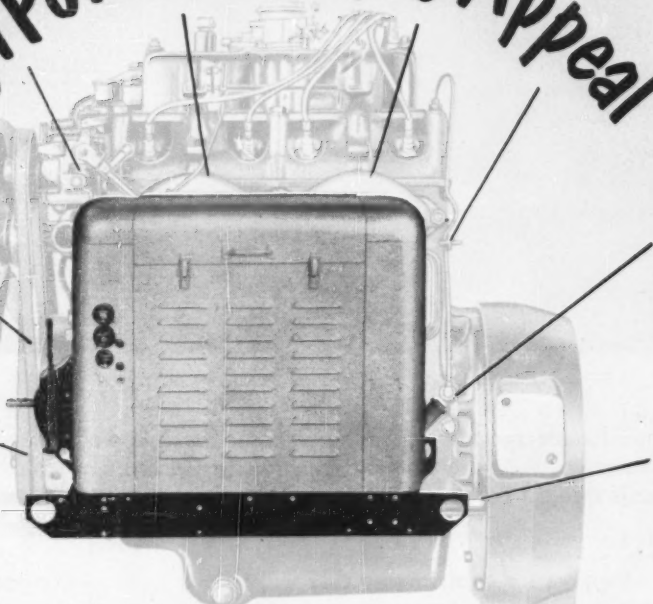
Paul Wooton

WASHINGTON, D. C.



GIVE YOUR EQUIPMENT

High Powered Sales Appeal



with



POWER GIANT

Industrial Engines and Power Units



Now you can have even more than "proven-in-action" engine features. Willys POWER GIANTS give your equipment added merchandising value with high powered sales appeal.

High powered, because in their class, the POWER GIANTS cannot be topped in raw power. And, sales appeal, because millions of men, both in and out of the military service, have marveled at the rugged performance of Willys Engines.

Here's extra value for your powered equipment at no extra cost. If you manufacture equipment or buy it, specify Willys POWER GIANTS.



WILLYS MOTORS, INC.

Industrial Engine Department

1450 North Cove Blvd.

Toledo, Ohio

VOICE OF INDUSTRY

Long-range planning for future markets



"... we can improve upon our present performance."

BENSON FORD

Vice-President, Ford Motor Company, before Advertising Federation of America, Boston, Mass.

To a marked extent, so far as business is concerned, the job of maintaining stability is a job of extensive and sound forward planning. It means bringing all the knowledge and skills at our command to bear on the job of forecasting and analyzing the future market. It means planning intelli-

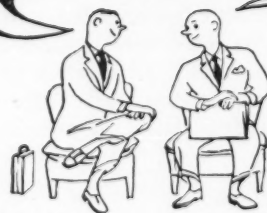
gently to meet that market, and trying to stick confidently to those plans despite temporary changes in business conditions.

Obviously, every sound company is always anxious to do all it can to stabilize its production and marketing and employment. Because of seasonal and other factors, there's a tremendous variation in the ability of different kinds of producers to operate at a steady pace all year round.

There is one area in which I believe all industry can make a very basic contribution to stability. That is in how we plan and carry out our capital investment programs. In the past few years, industry has been spending more than \$25 billion yearly on new and modernized plants and equipment. That kind of investment gives a tremendous sustained lift to the whole economy.

Continued on page 12

Say—those new ads for Wilson's meats really get home to you, don't they?



That's because Needham, Louis & Brorby knows how to dramatize a product—even as familiar a one as meat.*

***Here are the clients of Needham, Louis & Brorby...**

Campbell Soup Company	Morton Salt Company
Cummins Engine Company, Inc.	The Peoples Gas Light and
The Eagle-Picher Company	Coke Company
Household Finance Corporation	Phenix Foods Company
S. C. Johnson & Son, Inc.	The Quaker Oats Company
Kraft Foods Company	State Farm Insurance Companies
Macwhyte Company	Wieboldt Stores, Inc.
Monsanto Chemical Company	Wilson & Co., Inc.
Wilson Sporting Goods Co.	

NEEDHAM, LOUIS & BRORBY, Inc. Advertising

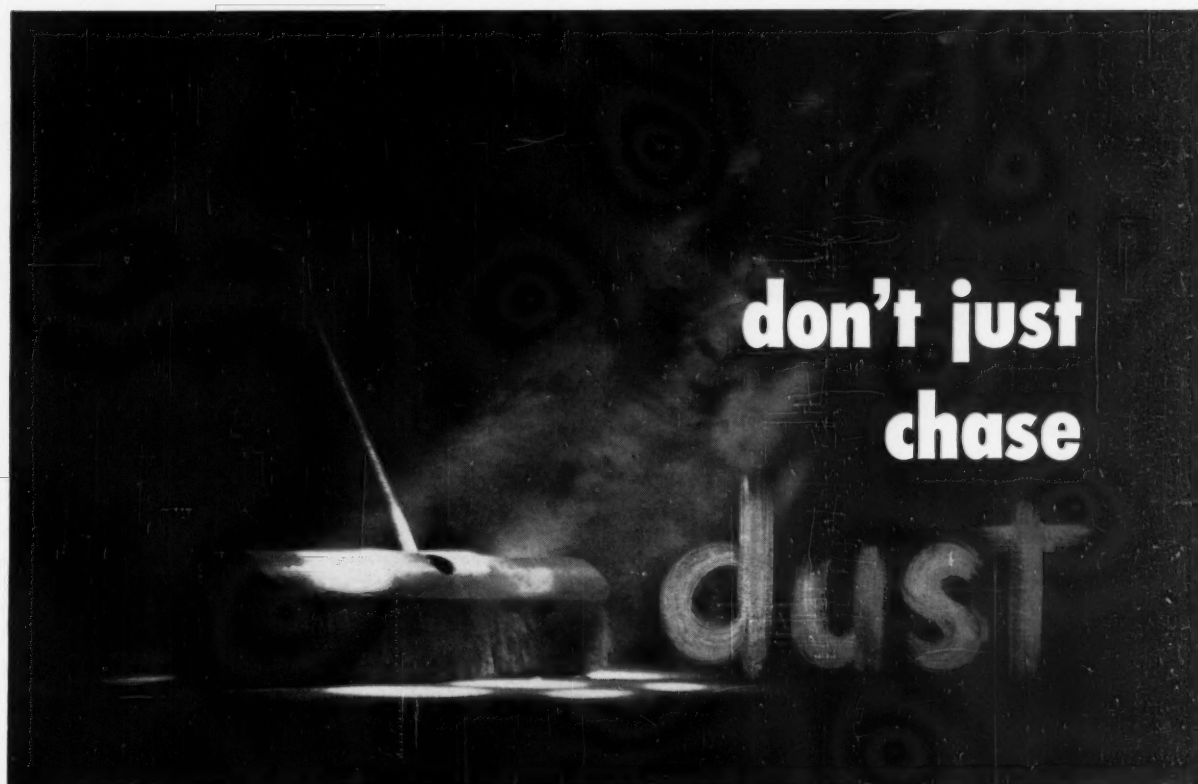
135 South La Salle Street, Chicago 3, Illinois

Chicago

New York

Hollywood

Toronto



**don't just
chase**

... eliminate dust with WESTONE!



Dramatic proof of ANTISEPTIC WESTONE'S effectiveness. The hand at left was rubbed across an ordinary untreated section of floor. The hand at right was rubbed over a section which had been treated with dust-controlling ANTISEPTIC WESTONE.

Sweeping only rearranges dust. As a matter of fact, sweeping and floor traffic are the main dust spreaders—not open doors and windows as you might think. And dust is damaging. It spreads many harmful disease bacteria that often cause absenteeism. It affects precision apparatus and delicate finished products. Makes store merchandise, office and institutional floors unsightly.

ANTISEPTIC WESTONE CONTROLS DUST. Loosens and picks it up from floors, bins, shelves, furniture. Seals floor surfaces. Improves their appearance. Holds down subsequent dust so traffic can't raise it. Its antiseptic properties inhibit growth of bacteria.

ANTISEPTIC WESTONE is economical. It works as fast as a man can walk. One man can do the work of three in maintaining floors. And it goes a long way. One gallon covers 4,000 square feet. Interested? Check the coupon.



42-16 West Street, Long Island City 1, N. Y.

WANT DETAILS?

*Tear out this coupon and
mail with your letterhead*

Dept. 1

I'm interested in:

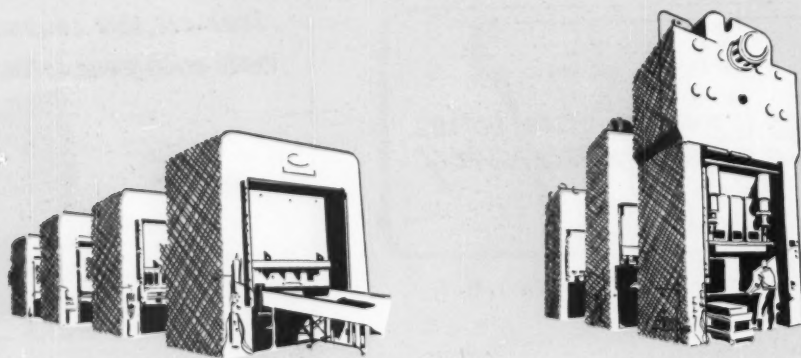
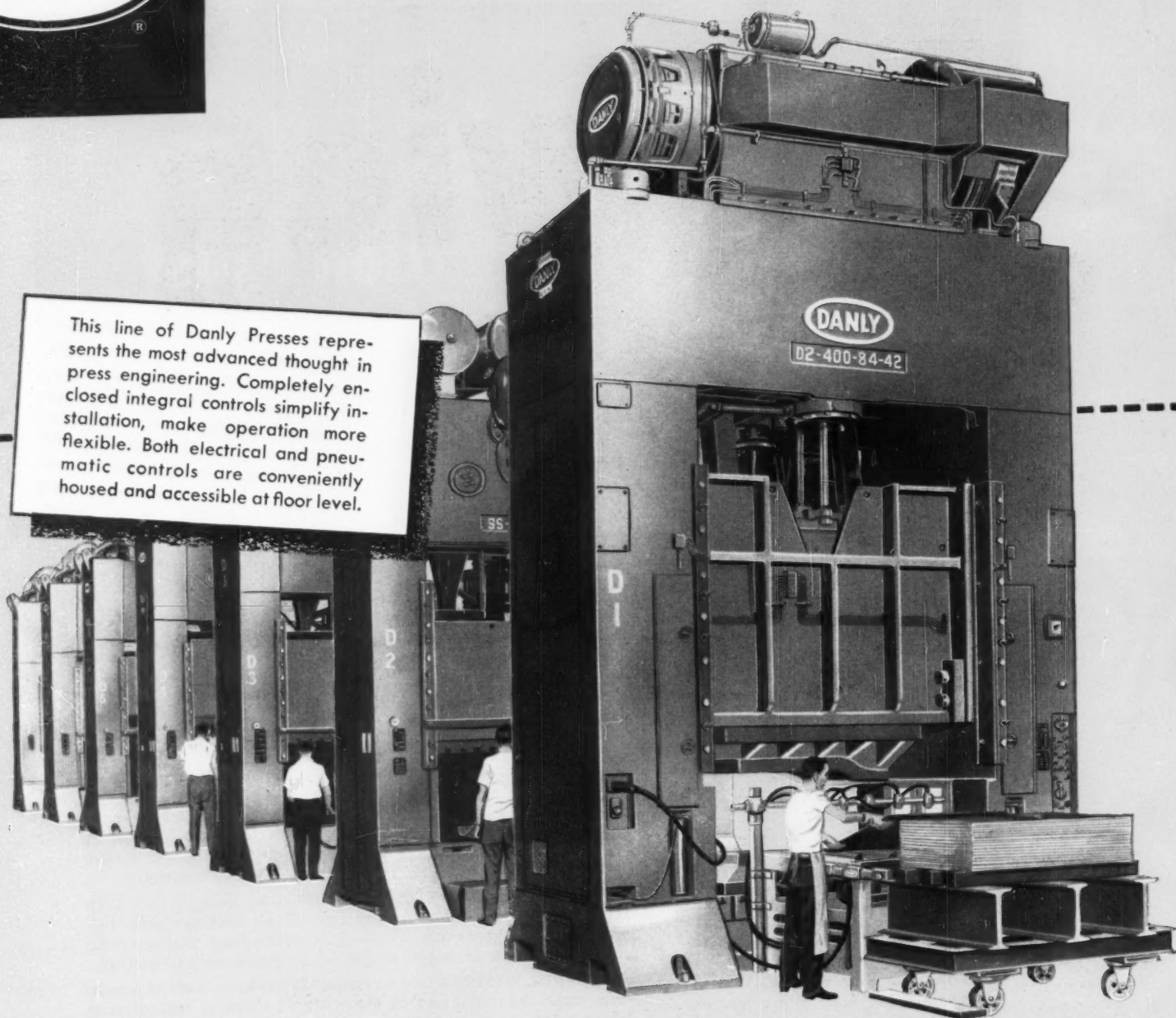
☐ A FREE leaflet on
WESTONE.

☐ A talk with a West expert about my special floor problems. No sales pitch. No obligation. Just discussion and a demonstration if I want it.



DANLY

This line of Danly Presses represents the most advanced thought in press engineering. Completely enclosed integral controls simplify installation, make operation more flexible. Both electrical and pneumatic controls are conveniently housed and accessible at floor level.



Danly offers any press you need for blanking, drawing or any secondary operation . . . single, double or triple action . . . overdrive or underdrive . . . to suit your plant layout. Make your press line a Danly line and save costs at every stage of your stamping operation.

Drawing

COSTS LESS ON A DANLY PRESS

When you get a tough draw job . . . put it on a Danly

Danly Presses reduce the cost of your drawing operations by producing more stampings per shift. Their proved mechanical worth adds up to greater production, fewer shutdowns.

The line of Danly Underdrive Presses below is headed by a Triple Action Danly that actually doubles production. Eliminating what is normally a choke point, this Danly draw press is equipped with a special slide motion that permits faster stroking without exceeding safe drawing speeds. The output from this press keeps the whole line of secondary operation presses working steadily at full capacity.

At the left is another line of Danly Presses headed

by a top drive double action draw press. This line represents the most advanced thought in press engineering. Totally enclosed and integral controls make installation practically a "plug-in" job. Operation is easier, safer—less maintenance is required.

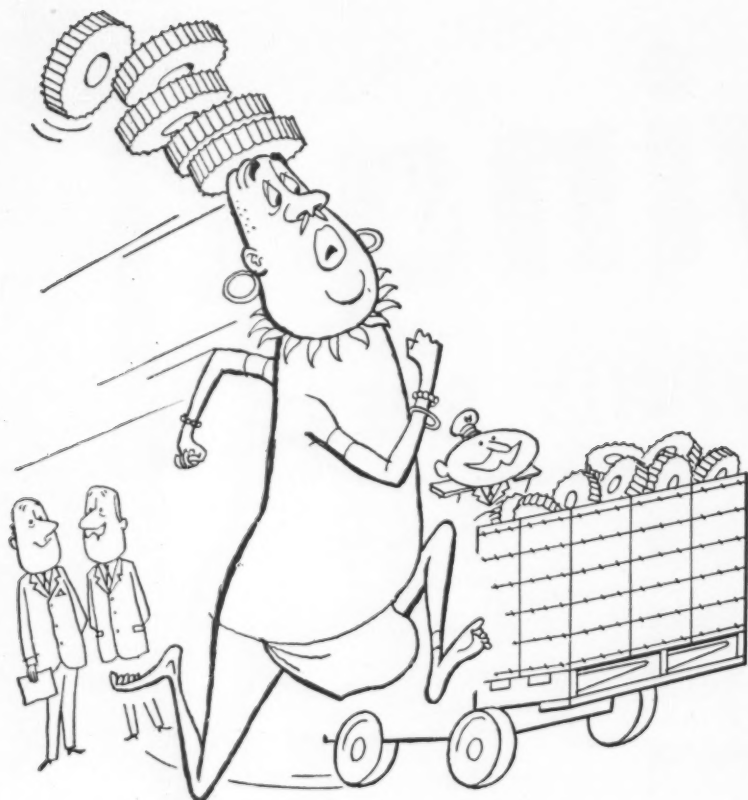
All Danly Presses are built heavier to stand up under continuous peak load operation. Automatic oil lubrication adds hours of production time to every working day. No matter what your stamping requirements are, Danly Presses will reduce your costs. Call a Danly press engineer today.

DANLY MACHINE SPECIALTIES, INC.
2100 South Laramie Avenue, Chicago 50, Illinois



Danly Underdrive presses like these are the new answer to mass production of large stampings . . . they double output of the entire line, require less floor space and are designed especially for automation.

DANLY



"Bongo was our fastest materials handling man until we got Generalift Pallet Boxes"

The modern way of moving parts and materials may not be as colorful as the old way—but it makes a lot more sense. When you have Generalift Pallet Boxes, one workman and a fork-lift truck can do the work of many. And we're finding more uses for this versatile container every day.

Why not find out how a Generalift Pallet Box fits your storage and handling picture? Have one of our engineers call. And send for your free copy of "The General Box." It's loaded with time-saving, money-saving ideas.

ENGINEERED CONTAINERS FOR EVERY SHIPPING NEED.

Factories: Cincinnati; Denville, N. J.; East St. Louis; Detroit; Kansas City; Louisville; Milwaukee; Prescott, Ark.; Sheboygan; Winchendon, Mass.; General Box Company of Mississippi, Meridian, Miss.; Continental Box Company, Inc., Houston.

General Box

GENERAL BOX COMPANY, 1861 MINER STREET, DES PLAINES, ILL.

Surprisingly, it is still holding up despite the fact that the defense program is tapering off at the same time that we have had a mild business contraction. If industry continues to be competitive and optimistic, we can sustain or even improve upon our present performance. We can and should be planning and carrying out our long-range investment programs to be ready for the expanded market of the future.

A vital function of top management



"Where does responsibility for industrial relations rest?"

GEORGE W. WILLIAMS

President, The Russell Manufacturing Company, before California Personnel Management Association.

One of the phases in industrial management that I believe is of considerable importance is the confidence which employees place in management. I believe this can best be accomplished by a system of communicating information from the front office to the employees. In the earlier days of industry, management did not give one great damn what the employees might know about the condition of the company and the business. It is my general feeling that the employee is extremely interested to know the condition and progress of the company for which he works.

The question arises from time to time: Where does the responsibility for industrial relations rest? It doesn't depend entirely upon the staff member of an organization who handles public relations on a full-time basis, or particularly on a lawyer who handles industrial relations. It comes directly from the front office. Without the confidence of the employees toward management, industrial relations becomes a very, very empty phrase. We should try never to forget that the top man (or the "Big Wheel") in any organization is really the top industrial relations man in that outfit. He is also the top public relations man. In my opinion, if he, the big boss, is not in sympathy with sound concepts of industrial relations, and if

plant-location news



What transportation facts do you need?

Recently, a container manufacturer using our Industrial Location Service to help select the right spot for his new plant, sent in this request: "We've got to be located where we can supply all areas of our market within 36 hours at a cost that will let us compete for new business." As in many other businesses, the transportation costs and schedules involved could make or break his proposed operation. But ILS found the perfect location—fast.

Here are some of the reasons why. ILS is the one organization that can give complete, up-to-the-minute facts on transportation costs, schedules, and facilities. Whether your business calls for assembling heavy or bulky water-borne materials, or for the use of air transport to get there "fastest with the mostest," ILS can give you all the facts—secured firsthand from dozens of carriers.

We even maintain a Washington office to help in transportation problems. From this listening post we get current reports on tariffs, regulations, and schedules... and all of this information is included in our free transportation reports. To get one of these studies for your needs, all you do is contact ILS.

We fill in the picture, too

But this isn't the only type of transportation data ILS supplies. For one specialty-goods manufacturer we did all this: located sites with suitable warehouses for ceramic bodies, and within a short distance of LCL terminals. Even more important, we found him available sites with private railroad sidings.

For every suggested location, ILS also prepared rates for assembling materials and distributing finished goods to given points. Supplied comparative rates for air, rail, water, and highway, too.

By the way, the manufacturer received all these facts for a number of sites in less than ten days. Helped him pick just the right spot without delay.

Other free plant-site services

Transportation won't be your only concern when you're looking for a new plant location. But no matter what factors are involved, ILS can be of help. Reports are available on buildings and sites, markets, raw materials, labor, water and local laws and regulations—to mention just a few. These surveys are tailored to meet your requirements, and sent to you without cost or obligation in strictest confidence.

Our booklet called "Industrial Location Services" shows how you can put this valuable plant-location data to work. To get your free copy, just drop me a card, care of the New York State Department of Commerce, Room 737, 112 State Street, Albany 7, N. Y.

Ronald B. Peterson

Director, Industrial Location Service
(Advertisement)

AT THE VERY HEART
OF FINE REPUTATIONS..
**AN EMERSON
ELECTRIC
MOTOR**

*The valuable extra you
get with your
Emerson-Electric motor*

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METAL OFFICE FURNITURE COMPANY
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BUSINESS EQUIPMENT

he avoids responsibility for what happens to his organization's communications, he is abrogating one of his most vital functions.

Supervisor's rôle in labor relations



"... one of the most responsible jobs in all industry ..."

ROBERT S. LYNCH

*President, Atlantic Steel Company,
before National Conference of Indus-
trial Management Clubs, Atlanta, Ga.*

In the shop, the supervisor performs one of his most important functions, in giving personal expression to top management's attitudes. The supervisor, because he is in shoulder-to-shoulder contact with his men, every hour of the day, has one of the most responsible jobs in all industry in helping management express its human outlook. To express it is a prime part of his own management job.

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South-Central Home Office
Jacksonville, Florida

The beautiful new 22-story PRUDENTIAL INSURANCE COMPANY BUILDING—tallest office structure in Florida—will have 9 Otis AUTOTRONIC operatorless elevators. It will be the center of Prudential's vast South-Central Home Office operations, and its 8 upper floors will be available to other tenants. This is one of more than 175 new and modernized office buildings, hotels, hospitals, banks, and department stores that have given AUTOTRONIC elevators an overwhelming vote of confidence—by buying it!

Architects: Kemp, Bunch & Jackson

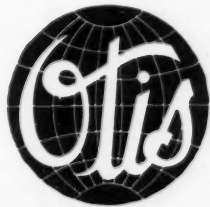
Passengers quickly discover why they like the Otis Electronic Elevator Door. It's the invisible *electronic zone of detection* that extends in front of the leading edges of both car and hoistway doors up to shoulder height—as shown in *phantom* above. It inspires passenger confidence.

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Dual-Vane Hydraulic Pumps, 3 to 120 gpm; Fluid Motors, 7 to 140 hp; 2000 psi operation. Piston-Type Pumps for 5000 psi.

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Vehicles that haul 75 ton loads . . . Shovels that handle 16 yards and more at a single bite . . . these are but two of the many juggernauts that move mountains or mole hills . . . that give industry higher production at lower cost. And the key to velvet-smooth control of all this harnessed energy is Fluid Power!

Mine, Construction, Marine, Oil Field, Farm and Materials Handling Equipment attain ever-increasing productivity through the rugged dependability of Fluid Power. Machine Tools, Presses, Paper Machinery, Petro-chemical and other processing equipment achieve greater automation plus micrometric precision through Fluid Power.

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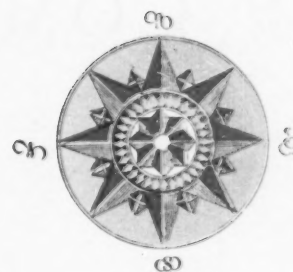
THE NEW YORK AIR BRAKE COMPANY

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Compass Points

OF BUSINESS



ONE OF THE strongest supports for business this year was that the American people had more money to spend than ever before. Personal after-tax income was at an annual rate of about \$252.6 billion in the first nine months of 1954, about 1 per cent above that in the comparable months of 1953 (Compass Point 13). Although a reduction in wage and salary payments resulted from the 1.5 per cent decline in employment, lower tax rates helped to boost the take-home pay of those working, and unemployment compensation provided sustaining funds for the jobless (Compass Points 3-6).

Sales, Savings, and Unemployment

The dollar volume of retail sales in the first nine months of 1954 was maintained at a level less than 2 per cent below a year ago. While department store sales in the period from January 1, to October 9, averaged 2 per cent below the 1953 level, sales either equalled or exceeded the comparable 1953 volume in six of the twelve Federal Reserve Districts. The percentage changes ranged from a gain of 3 per cent in the San Francisco District to a decline of 5 per cent in the Cleveland District.

A rise from a year ago of 4 per cent in consumer spending for services in the first nine months of 1954 more than offset a decline of less than 1 per cent in spending for both durable and nondurable goods. Consumers continued to save about 8 per cent of their spendable funds, twice as large a proportion as the 4 per cent average for the post-war years 1947-1950 and for pre-war 1939. Added to the \$379.1 billion in individuals' liquid assets that were salted away by the end of 1953, these savings were part of a very comfortable nest-egg.

Unemployment tapered off gradually to 2.7 million in October from the February-March peak of 3.7 million. While the jobless were still considerably more numerous than a year ago, the proportion of the labor force unemployed in the first nine months of 1954, at 5.2 per cent was less than the monthly averages of 5.5 per cent in 1949 and 17.2 per cent in 1939.

But the over-all figures for personal income and outlays, which hardly sound recessionary, tend to obscure some very real problems. The per capita expenditure for goods and services

WHILE THE FAILURE STATISTICS REFLECTED THE MARKED READJUSTMENT TO LOWER LEVELS OF ACTIVITY WHICH OCCURRED IN SOME LINES OF BUSINESS, IT APPEARED FROM THE OVER-ALL LEVELS OF OUTPUT, INCOME, AND SPENDING THAT 1954 MIGHT PROVE THE SECOND BEST BUSINESS YEAR IN HISTORY. WHETHER THE SOFTNESS IN SOME LINES MIGHT SPREAD TO OTHERS, OR WHETHER THE STRENGTH OF THE STRONG LINES MIGHT BE INFUSED TO THE WEAKER ONES WERE QUESTIONS FOR 1955. HERE IS A BASIS FOR FUTURE JUDGMENT.

for personal use dipped to \$1,430 from \$1,441 in 1953, because the growth in population surpassed that in spending. A further expansion in the population, certain for 1955, will require larger outlays for consumption if living standards are to be maintained, or improved. And more jobs will be needed to keep the growing labor force gainfully occupied.

Failures and Small Business

That business was beset with many challenges in 1954 was reflected in the failure statistics (Compass Points 38 and 39). In the first nine months of 1954, failures averaged 218 a week, compared with 169 a week in 1953 and 150 a week in 1952. The rate of increase appeared to

be slackening, however. While failures averaged 32 per cent higher than a year ago in the first eight months of 1954, the year-to-year rise dropped to 19 per cent in September.

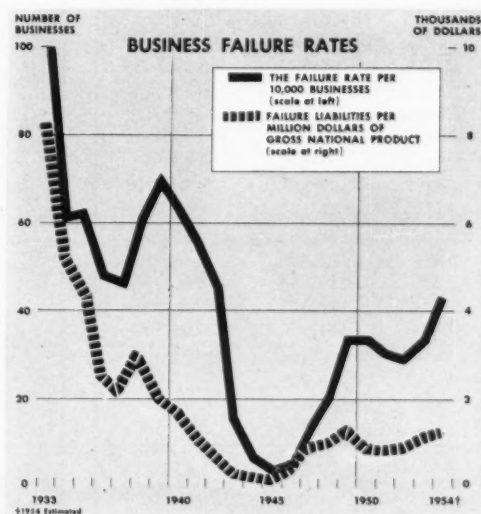
There were signs that the smaller businesses found it more difficult to survive than the larger enterprises. The average liability per business failure dropped to about \$43,000 in the first nine months of 1954 from around \$44,500 in 1953, although it still surpassed the \$37,000 in 1952. Corrected for changes in the value of the wholesale dollar, the comparable 1939 figure was roughly \$27,000, the 1932 figure, \$76,600.

The rate of failure as a proportion of the business population was higher in the first nine months of 1954 than in other post-war years. So was the relationship of losses to the total annual output of goods and services. But both were well below pre-war levels (chart on this page). Failures in the various industries are discussed in more detail in "The Trend of Business" which starts on page 53.

Mergers and New Incorporations

Another confirmation of stiffer competition in 1954 was the growth in the number of mergers. A larger number of businesses was offered for sale this year than last. According to business brokers, they were more difficult to sell, with the result that the prices sometimes dropped considerably. Prospective buyers were usually more interested in small factories manufacturing hard goods than in other kinds of enterprises; eating places were the least wanted.

The number of new business incorporations in the first nine months of 1954 rose 11 per cent above the comparable 1953 level. While it has not been determined how many of the new incorporations were new enterprises and how many resulted from the reorganization or merger of existing businesses, it seems probable that



The sharp upturn in the failure rate contrasted with the relatively milder rise in the relation of liabilities to total business, confirming the preponderance of smaller casualties. Failures with liabilities less than \$25,000 were 32 per cent above a year ago in the first nine months of 1954, compared with a rise of 20 per cent in those over \$100,000. Failures involving liabilities of \$1,000,000 or more were 14 per cent less numerous than in the first nine months of 1954.

39 COMPASS POINTS OF BUSINESS .

CENSUS

1	2
POPULATION	NAMES IN REFERENCE BOOK
Millions	Thousands
1914	99.1 1,655
1919	105.1 1,711
1920	106.5 1,821
1921	108.5 1,927
1929	121.8 2,213
1930	123.1 2,183
1931	124.0 2,125
1932	124.8 2,077
1939	130.9 2,116
1940	132.0 2,156
1941	133.2 2,171
1942	134.7 2,156
1943	136.5 2,027
1944	138.1 1,859
1945	139.6 1,913
1946	141.3 2,146
1947	144.0 2,410
1948	146.6 2,555
1949	149.2 2,684
1950	151.7 2,692
1951	154.4 2,614
1952	157.0 2,643
1953	159.7 2,673
'53 I	158.7 2,665
'53 II	159.6 2,663
'53 III	160.0 2,683
'53 IV	160.7 2,691
'54 I	161.3 2,660
'54 II	162.0 2,641
'54 III	162.7 2,642

EMPLOYMENT

3	4	5	6
EMPLOYMENT Civilian	EMPLOYMENT Agricultural	EMPLOYMENT Nonagricultural	UNEMPLOYMENT
Millions	Millions	Millions	Millions
1914	37.6 11.4	26.2	...
1919	42.0 10.5	31.5	...
1920	41.3 10.7	30.6	...
1921	37.7† 10.8†	26.9†	...
1929	47.6 10.0	36.3	1.5
1930	45.5 9.9	34.3	4.3
1931	42.4 9.8	31.3	8.0
1932	38.9 9.7	28.0	12.1
1939	45.8 9.3	35.6	9.5
1940	47.5 9.5	38.0	8.1
1941	50.4 9.1	41.3	5.6
1942	53.8 9.3	44.5	2.7
1943	54.5 9.1	45.4	1.1
1944	54.0 9.0	45.0	.7
1945	52.8 8.6	44.2	1.0
1946	55.2 8.3	46.9	2.3
1947	58.0 8.3	49.8	2.1
1948	59.4 8.0	51.4	2.1
1949	58.7 8.0	50.7	3.4
1950	60.0 7.5	52.5	3.1
1951	61.0 7.1	54.0	1.9
1952	61.3 6.8	54.5	1.7
1953	61.9 6.5	55.4	1.5
'53 I	61.0 5.5	55.5	1.8
'53 II	62.0 6.8	55.2	1.5
'53 III	62.9 7.4	55.5	1.3
'53 IV	61.6 6.4	55.3	1.5
'54 I	60.0 5.6	54.4	3.5
'54 II	61.3 6.8	54.4	3.3
'54 III	→ 62.1 7.3	54.8	→ 3.2

PRICES

7	8	9	10
CONSUMERS' PRICES	RETAIL PRICES	WHOLESALE PRICES	INDUSTRIAL STOCK PRICE AVERAGES
Index	Index	Index	Dollars
1914	42.9	...	43.3 81.03
1919	74.0	...	88.1 99.78
1920	85.7	...	98.1 90.04
1921	76.4	...	62.0 73.48
1929	73.3	120.9	61.9 311.24
1930	71.4	...	56.1 236.34
1931	65.0	...	47.4 138.58
1932	58.4	...	42.8 64.57
1939	59.4	99.0	50.1 142.66
1940	59.9	100.6	51.1 134.74
1941	62.9	108.3	56.8 121.82
1942	69.7	124.9	64.2 107.20
1943	74.0	134.0	67.0 134.81
1944	75.2	137.5	67.6 143.32
1945	76.9	141.4	68.8 169.82
1946	83.4	155.2	78.7 191.65
1947	95.5	180.1	96.4 177.58
1948	102.8	192.7	104.4 179.95
1949	101.8	187.7	99.2 179.48
1950	102.8	189.0	103.1 216.31
1951	111.0	206.8	114.8 257.64
1952	113.5	210.4	111.6 270.76
1953	114.4	209.1	110.1 275.96
'53 I	113.6	208.3	109.8 286.40
'53 II	114.1	208.6	109.5 273.00
'53 III	114.9	210.2	110.8 268.11
'53 IV	115.1	209.3	110.0 276.32
'54 I	115.0	208.9	110.3 292.64
'54 II	114.9	208.6	110.3 320.56
'54 III	115.1	209.2	→ 110.3 346.67

SALES

21	22	23	24	25	26
FARM RECEIPTS	EXPORTS	IMPORTS	RETAIL SALES	WHOLESALE SALES	MANUFACTURING SALES
Million dollars	Million dollars	Million dollars	Million \$	Million \$	Million \$
1914	6,039	2,114	1,789
1919	14,570	7,920	3,904	36,549	60,509
1920	12,606	8,228	5,278	41,364	63,659
1921	8,116	4,485	2,509	32,954	41,897†
1929	11,299	5,241	4,399	48,459	37,814 70,262
1930	9,050	3,843	3,061	41,989	...
1931	6,369	2,424	2,091	34,752	...
1932	4,735	1,611	1,323	25,013	...
1939	8,582	3,177	2,318	42,042	26,244† 61,340
1940	9,056	4,021	2,625	46,375	28,919 70,313
1941	11,619	5,147	3,345	55,274	36,394 98,069
1942	16,136	8,079	2,756	57,212	41,109 125,158
1943	20,003	12,965	3,381	63,235	45,966 153,843
1944	21,153	14,259	3,929	70,208	49,828 165,387
1945	22,125	9,806	4,159	78,304	53,708 154,481
1946	25,336	9,738	4,942	102,488	71,915 151,402
1947	30,020	14,430	5,756	119,604	87,263 191,010
1948	30,464	12,653	7,124	130,521	95,172 211,560
1949	28,129	12,051	6,622	130,721	88,252 196,997
1950	28,611	10,275	8,852	143,689†	103,896 231,415
1951	33,084§	15,030	10,967	158,223	113,168 266,460
1952	32,648	15,177	10,714	164,085	112,325 276,548
1953	31,188	15,698	10,875	170,742	111,990 303,356
'53 I	6,840	3,876	2,782	39,339	26,114 74,829
'53 II	6,185	4,217	2,848	43,410	28,201 77,822
'53 III	8,034	3,768	2,675	42,643	29,331 76,139
'53 IV	10,129	3,837	2,570	45,350	28,344 74,566
'54 I	6,603	3,394	2,498	37,944	25,260 71,332
'54 II	6,152	4,291	2,733	43,246	26,742 72,127
'54 III	7,746	3,690	2,500	→ 42,351	28,575 70,264

INVENTORIES

27	28	29
RETAIL INVENTORIES	WHOLESALE INVENTORIES	MANUFACTURING INVENTORIES
Million \$	Million \$	Million \$
1914
1919	...	12,906
1920	...	13,484
1921	...	10,705†
1929	7,298	4,024 12,775
1930	...	3,497 11,265
1931	...	2,665 9,105
1932	...	2,307 7,332
1939	5,285	3,075† 11,516
1940	5,819	3,255 12,873
1941	7,371	4,073 17,024
1942	7,438	3,830 19,348
1943	7,065	3,759 20,171
1944	7,105	3,969 19,578
1945	7,442	4,625 18,457
1946	11,231	6,606 24,620
1947	13,372	7,613 29,032
1948	15,190	7,982 31,782
1949	14,570	7,913§ 29,038
1950	18,699§	10,474 34,534§
1951	19,904	11,068 43,123
1952	20,234	11,310 44,442
1953	21,208	11,695 46,947
'53 I	22,649	11,641 45,158
'53 II	22,141	11,453 46,334
'53 III	23,023	12,013 46,646
'53 IV	21,208	11,695 46,947
'54 I	23,321	11,843 45,959
'54 II	22,131	11,563 44,675
'54 III	→ 22,100	11,600 → 43,400

→ Quarterly figures that are significant either for their change or their lack of change from previous levels. Third quarter figures for most series are based upon preliminary estimates and incomplete data. Sources of the statistical series and additional information concerning the figures are obtainable on request.

a record of business activity

INCOME

11 WEEKLY HOURS Indust. Workers Hours	12 WEEKLY EARNINGS Indust. Workers Dollars	13 DISPOSABLE PERSONAL INCOME Billion Dollars	14 DISPOSABLE INCOME Per Capita 1953 Dollars	15 CORPORATE PROFITS AFTER TAXES Billion dollars
49.4	11.01	33.2	894	1.9
46.3	22.08	63.5	934	5.7
47.4	26.30	66.8	838	3.9
43.1	22.18	52.8	730	0.0
44.2	25.03	83.1§	1,064§	8.3§
42.1	23.25	74.4	968	2.5
40.5	20.87	63.8	893	-1.3
38.3	17.05†	48.7	765	-3.4
37.7	23.86	70.4	1,035	5.0
38.1	25.20	76.1	1,103	6.5
40.6	29.58	93.0	1,269	9.4
42.9	36.65	117.5	1,432	9.5
44.9	43.14	133.5	1,512	10.5
45.2	46.08	146.8	1,615	10.4
43.4	44.39	150.4	1,603	8.3
40.4	43.82	159.2	1,545	13.4
40.4	49.97	169.0	1,405	18.2
40.1	54.14	187.6	1,423	20.3
39.2	54.92	188.2	1,417	15.8
40.5	59.33	206.1	1,512	22.1
40.7	64.77	226.1	1,510	18.7
40.7	67.97	236.9	1,521	17.2
40.5	71.50	250.1	1,567	18.3
41.0	71.48	247.8•	1,572•	19.7•
40.7	71.39	250.4•	1,577•	19.5•
40.2	71.40	251.2•	1,562•	19.0•
40.2	71.76	251.2•	1,554•	15.1•
39.5	70.97	252.3•	1,555•	17.5•
39.3	70.87	252.9•	1,554•	17.5•
39.6	71.28	252.6•	1,544•	17.0•

PRODUCTION

16 INDUSTRIAL PRODUCTION (PHYSICAL) Index	17 ELECTRIC POWER PRODUCTION Billions kwh	18 BUILDING PERMITS 120 Cities Million \$	19 EXPENDITURES FOR PLANT & EQUIPMENT Billion dollars	20 GROSS NATIONAL PRODUCT Billion dollars
33	...	735	...	38.5
39	...	1,181	...	77.9
41	56.6	1,256	...	86.2
31	53.1	1,493	...	70.3
59	116.7	2,490	9.2	104.4§
49	114.6	1,408	7.6	91.1
40	109.4	1,006	4.7	76.3
31	99.4	336	2.6	58.5
58	161.3	1,029	5.5	91.1
67	179.9	1,104	6.5	100.6
87	208.3	1,196	8.2	125.8
106	233.1	644	6.1	159.1
127	267.5	419	4.5	192.5
125	279.5	709	5.2	211.4
107	271.3	1,028	8.7	213.6
90	269.6	2,089	14.8	209.2
100	307.4	2,470	20.6	232.2
104	336.8	3,111	22.1	257.3
97	345.6	3,131	19.3	257.3
112	388.7	4,466	20.6	285.1
120	432.3	3,654	25.6	328.2
124	463.1	3,523	26.5	346.1
133	516.5	4,034	28.4	364.9
135*	124.8	883	6.3	361.8•
136*	126.2	1,143	7.3	369.9•
133*	131.3	1,079	7.1	367.2•
130*	131.1	929	7.7	360.5•
124*	131.5	948	6.2	355.8•
125*	131.4	1,119	6.9	356.0•
125*	138.4	1,084	7.0	357.2•

1914

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FEDERAL

30 FEDERAL RECEIPTS Million dollars	31 FEDERAL EXPENDITURES Million dollars	32 GROSS FEDERAL DEBT Billion dollars
735	735	1.2
5,152	18,515	25.5
6,695	6,403	24.3
5,625	5,116	24.0
4,033	3,299	16.9
4,178	3,440	16.2
3,190	3,652	16.8
2,006	4,535	19.5
5,103†	8,966†	40.4
5,265	9,183	43.0
7,227	13,387	49.0
12,696	34,187	72.4
22,202	79,622	136.7
43,892	95,315	201.0
44,762	98,703	258.7
40,027	60,703	269.4
40,043	39,289	258.3
42,211	33,791	252.3
38,246	40,057	252.8
37,045	40,167	257.4
48,142	44,633	255.2
62,129	66,145	259.1
65,218	74,607	266.1
23,402	17,505	264.5
19,507	20,591	266.1
15,174	18,066	272.9
13,441	17,131	275.2
24,100§	15,320§	270.2§
20,234	17,614	271.3
13,949	18,258	275.0

FINANCE

33 CONSUMER CREDIT Outstanding Billion dollars	34 LOANS OF COMMERCIAL BANKS Billion dollars	35 CURRENCY OUTSIDE OF BANKS Million \$	36 DEMAND DEPOSITS ADJUSTED Million \$	37 INTEREST ON BUSINESS LOANS Per cent
...	13.2	1,533	10,082	...
...	22.4	3,593	17,624	6.58
...	28.1	4,105	19,616	6.68
...	26.1	3,677	17,113	5.53
6.4	35.7	3,557	22,809	5.83
5.8	34.5	3,605	20,967	4.85
4.8	29.2	4,470	17,412	4.30
3.6	21.8	4,669	15,728	4.71
7.2	17.2	6,401	29,793	2.10
8.4	18.8	7,325	34,945	2.10
9.2	21.7	9,615	38,992	2.00
6.0	19.2	13,946	48,922	2.20
4.9	19.1	18,837	60,803	2.60
5.1	21.6	23,505	66,930	2.40
5.7	26.1	26,490	75,851	2.20
8.4	31.1	26,730	83,314	2.10
11.6	38.1	26,476	87,121	2.10
14.4	42.5	26,079	85,520	2.50
17.1	43.0	25,415	85,750	2.70
20.8	52.2	25,398	92,272	2.70
21.5	57.7	26,315	98,234	3.10
25.8	64.3	27,494	101,500	3.50
28.9	68.3	28,091	103,300	3.69
25.9	65.2	26,900	97,400	3.54
27.4	65.5	27,369	97,200	3.73
28.0	66.5	27,500	98,100	3.74
28.9	68.3	28,091	103,300	3.76
27.2	67.1	26,900	96,700	3.72
27.8	66.9	27,100	98,300	3.60
28.0	67.2	27,500	98,800	3.59

FAILURES

38 BUSINESS FAILURES Number	39 LIABILITIES OF FAILURE Million \$
18,280	357.9
6,451	113.3
8,881	295.1
19,652	627.4
22,909	483.3
26,355	668.3
28,285	736.3
31,822	928.3
14,768	182.5
13,619	166.7
11,848	136.1
9,405	100.8
3,221	45.3
1,222	31.7
810	30.2
1,130	67.3
3,476	204.6
3,252	234.6
9,246	308.1
9,162	248.3
8,058	259.4
7,611	283.3
8,862	394.2
2,077	81.7
2,207	92.7
2,110	102.2
2,468	117.6
2,895	134.6
2,834	127.9
2,587	101.2

1914

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†Figures for this and prior dates are from another source and are not strictly comparable with later data.
‡Beginning in 1937 tax refunds are deducted from receipts and are not included among expenditures.
•Annual rate seasonally adjusted. *Quarterly figures seasonally adjusted. §Series revised from this date.



Now every office can have one!

WANT TO get rid of the nuisance and delay in licking and sticking old-fashioned adhesive stamps?... Wet nursing stamps in a tin box?... Stamp losses and borrowing?... Running out of denominations you need?... Running to the postoffice and standing in line for stamps?... Then you want a postage meter!

Today the smallest office can have modern, efficient metered mail—with the little inexpensive DM, desk-model postage meter.

The DM prints the exact amount of postage needed for any class of mail, directly on the envelope—with a dated postmark that helps your mail go through the postoffice faster. Prints your own small ad at the same time, if you like.

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The DM is set by the postoffice for as much postage as you want to buy. And your postage in the meter is safe from loss and misuse.

NOW THERE'S a Pitney-Bowes postage meter, electric or hand-operated, for every office, large or small. Ask the nearest PB office to show you—or send coupon for the free illustrated booklet.



FREE: Handy chart of Postal Rates with parcel post map and zone finder.

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Please send free ☐ DM booklet, ☐ chart to:

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the proportion in the latter category may be larger than in other post-war years.

It is interesting that the over-all level of prices in the first nine months of 1954 slightly exceeded that in 1953, although the heightened competition might have been expected to exert a perceptible downward push.

The pressure of high fixed costs and higher average wage rates than a year ago were the principal deterrents to price softening. Continued Government support of some of

durable goods at retail were lower than in July, although there was a less than seasonal drop in automobile dealers' stocks.

While inventories of manufacturers of durable goods were about 10 per cent below a year ago, the decline was less marked in nondurables, amounting to 2 per cent.

Orders and Production

Manufacturers' shipments surpassed new order volume in each of the first eight months of 1954, resulting in consistent reductions in backlogs. Unfilled orders in August, valued at \$47.3 billion, were 19 per cent lower than at the end of 1953 and 33 per cent below a year ago.

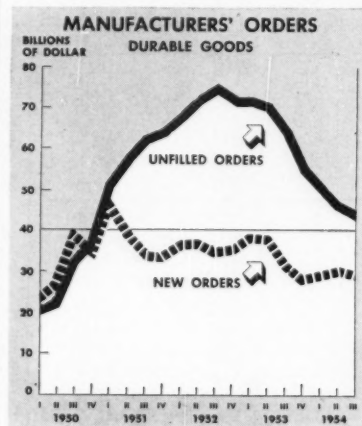
The physical volume of industrial output varied less than 1 per cent from month to month in the first three quarters of 1954. At 124 per cent of the average level in the years 1947-1949, the Federal Reserve Board's seasonally adjusted index of over-all industrial production was 8 per cent below the corresponding 1953 level, but it was 1 per cent above that in 1952 and higher than in any of the preceding post-war years.

The general reductions in inventories were a particular deterrent to production in the durable goods industries. The physical output of durable goods averaged 12 per cent below a year ago in the first nine months of 1954, compared with a drop of 4 per cent in nondurables, and a gain of 1 per cent in minerals production.

The Building Boom

Reaching new high levels month after month, volume in the construction industry was by far the most encouraging of business indicators. Contracts for future construction awarded in September 1954 were the highest for any September in history, according to reports from the F. W. Dodge Corporation. Awards for future home construction in September were 53 per cent above the year-ago level; September 1953 was considered an "average" month for residential contract awards by the Dodge Corporation analysts. Total awards in the first nine months of 1954 amounted to \$14.5 billion, an all-time high, 13 per cent above the corresponding 1953 level.

Actual cash outlays for new con-



SOURCE: U.S. DEPARTMENT OF COMMERCE

While the third quarter 1954 decline in manufacturers' unfilled orders for durable goods was less sharp than in previous quarters, it appeared that the relationship of new orders to backlogs was approaching the pre-Korean levels.

the basic commodity prices was a further mainstay, although farm prices generally fell somewhat, averaging 3 per cent below the 1953 level and 16 per cent below their peak in 1951.

The prices for commodities other than farm products and foods averaged about 1 per cent above year-ago levels in the first nine months of 1954 and were but 2 per cent below their all-time high in 1951.

Inventories Down

When August business inventories dropped below a year ago for the first time in 1954, many business observers ventured to suppose that the downward readjustment in stocks which started about a year previously might be close to an end. Retailers had 1.5 months stocks on hand in relation to current sales volume in August, compared with 1.6 months a year ago and 1.4 months in the corresponding period of 1952. Inventories of

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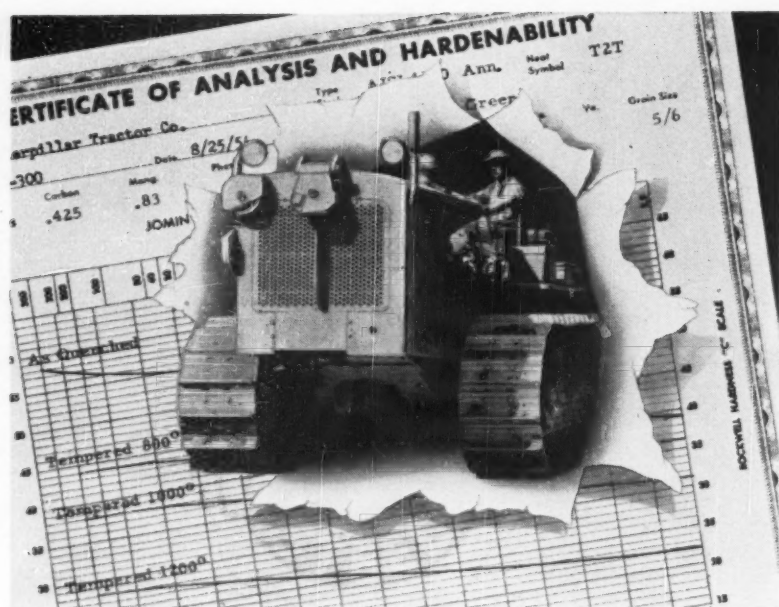
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Attention

Address

City..... Zone..... State.....



Caterpillar quality control inspires Ryerson certification

It was 1935. Caterpillar—pioneering in quality control—was concerned about the quality of alloy steels from warehouse stock. We at Ryerson wanted to help and sent our metallurgists to see what could be done.

Caterpillar pointed out that in heat treatment there can be as much difference in behavior between two mill heats of the same type composition as between two heats of different type composition. To emphasize this, they cited a statement in the AISI Manual that it would be false and misleading to assume all steels of a given composition are the same.

Accepting the challenge, Ryerson began to build a quality control program which included: (1) Careful selection of heats; (2) spark testing and (3) identification and segregation of bars

from each heat; (4) color marking of each bar by AISI number; (5) hardenability testing of each heat and (6) interpretation of test results; (7) final order inspection and (8) the supplying of a Certificate to confirm quality and guide heat treatment.

After two years of preparation—we announced the Ryerson Certified Alloy Steel Plan in 1937. So now—not only Caterpillar but all other alloy steel users can buy high, uniform quality alloys from Ryerson stocks with complete confidence.

We are particularly happy to tell this story of progress in quality control on this, the 50th anniversary of the Caterpillar Tractor Co. And we are proud to be one of four companies which have been serving Caterpillar since its founding half a century ago.



RYERSON STEEL

Principal products in stock: bars, structural, plates, sheets, tubing, alloy and stainless steel, reinforcing steel, etc., also machinery and tools

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK • BOSTON • PHILADELPHIA
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struction in the first nine months of 1954, at \$27.4 billion, were 10 per cent higher than in 1953, increasing the probability that 1954 might prove the most prosperous of years for construction.

Business expenditures for new plant and equipment were scheduled at \$26.7 billion for 1954, 6 per cent below the 1953 all-time peak (Compass Point 19).

The outlook for construction in future years seems likely to remain rather bright. Within the next few months, Government plans for a ten-year, \$100 billion highway modernization program are scheduled for completion.

Government Outlays

Military spending for the fiscal year 1955, which began July 1, 1954, is scheduled at \$41.9 billion, down 9 per cent from that in the preceding fiscal year. This will be 6 per cent below the outlays in fiscal 1953, but more than three times as large as the pre-Korean total in fiscal 1950.

A planned reduction by some 300,000 in the size of the armed forces to about 3 million men by June 30, 1955 is a major reason for the lower spending level. The Air Force, however, is scheduled to expand somewhat and such other kinds of military spending as atomic energy development, stockpiling, and foreign aid programs will remain very large.

It is expected that the procurement of military hard goods will require the expenditure of \$15 to \$20 billion a year for some years.

While government spending may decline both absolutely and as a proportion of the gross output of goods and services, the outlays will remain very important.

Federal government purchases of goods and services dropped to 15 per cent of the gross national product in 1954 from 16 per cent in 1953 and 1952; an increase in spending by state and local governments maintained total public outlays at the 23 per cent level which prevailed in 1953. Total government purchases constituted 22 per cent of the gross national product in 1952, 19 per cent in 1951, and 15 per cent in 1950.

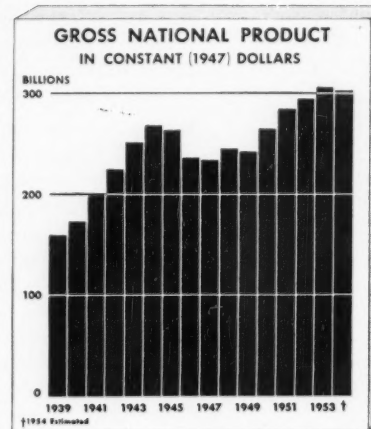
The physical volume of the output of goods and services in the first nine months of 1954 was near

an all-time high, exceeded only in the peak year 1953 (chart on this page). But output per capita in 1954 was 3 per cent below that in 1953 and fractionally below that in 1952, although it was 15 per cent higher than in 1949 and 55 per cent above the 1939 level.

The Near Future

An expansion in retail sales was anticipated for the closing months of 1954 by many of the merchandising experts. Some of the larger buying offices planned for gains of 3 to 5 per cent over a year ago in the 1954 Christmas trade. Early forecasts for 1955, gleaned from scattered reports, pointed to a slightly higher level of general business activity than in 1954.

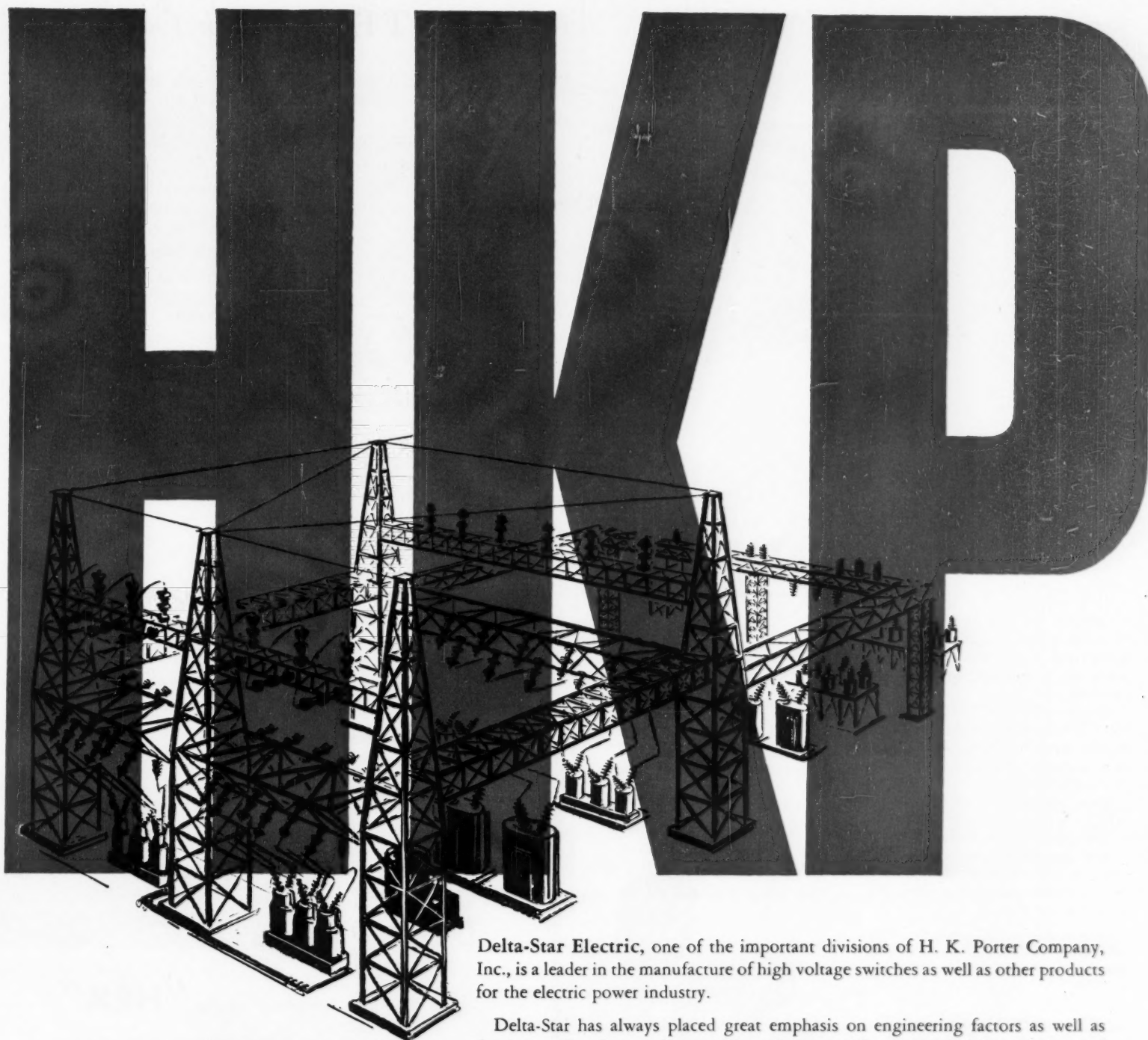
Although some of the steel industry observers thought that steel output might increase next year, it was the consensus that production probably would not exceed 75 per cent of capacity. This compares with the average rate of 68 per cent of capacity in the first nine months of 1954.



SOURCE: U. S. DEPARTMENT OF COMMERCE

Close to the all-time peak, and almost twice as large as in pre-war 1939, the physical output of goods and services in the first three quarters of 1954 bespoke a continued high standard of living for the expanding population.

That farm income in 1955 might again be reduced was expected because of the acreage restrictions on some of the basic crops. A drop of 3 to 5 per cent in farm cash receipts was thought probable; receipts in 1954 are expected to reach \$29.8 billion, 4 per cent below the 1953 level, 9 per cent below the all-time peak in 1951 (Compass Point 21).



Delta-Star Electric, one of the important divisions of H. K. Porter Company, Inc., is a leader in the manufacture of high voltage switches as well as other products for the electric power industry.

Delta-Star has always placed great emphasis on engineering factors as well as fundamental and good design. All products must be economical in operation and give dependable service throughout years of use. Each is tested under every conceivable adverse condition to assure top efficiency.

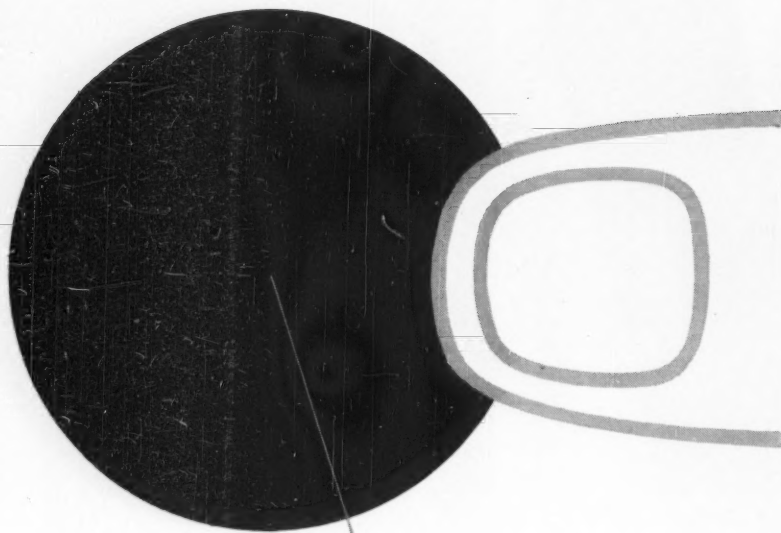
When you want the best, specify Delta-Star. Delta-Star products, and those of all Porter Divisions, are known for their dependability.

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LESCHEN WIRE ROPE, ST. LOUIS, MO.	THE WATSON-STILLMAN COMPANY, ROSELLE, N. J.
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LETTERS to the Editor

PUZZLED

Cincinnati, Ohio

Dear Sir:

The articles on office management which appeared in the September issue of DUN'S REVIEW AND MODERN INDUSTRY were interesting and informative.

However, there is one question which bothers me every time I read articles on office management. Who does the author have in mind when he speaks of the "Office Manager" and what is the content of his job?

J. E. Slattery
Training Manager
The Andrew Jergens Co.

The term refers to the man held responsible for attaining increased office efficiency.—Ed.

PLEASED

Cleveland, Ohio

Dear Sir:

Your articles on "What's Wrong With Office Management?" are as superb as they were long overdue. There have been voices crying in

the wilderness on this subject but it remained for yours to lend credence and prestige to something which needs saying over and over again.

On Thursday, September 16, I delivered a talk, and I'm glad I wrote it before reading your articles or I might have been accused of plagiarism.

May we reprint your articles for distribution to the top executives of about 800 companies?

Again, thanks and congratulations for a job well done.

Frank M. Knox
President
Frank M. Knox Co. Inc.

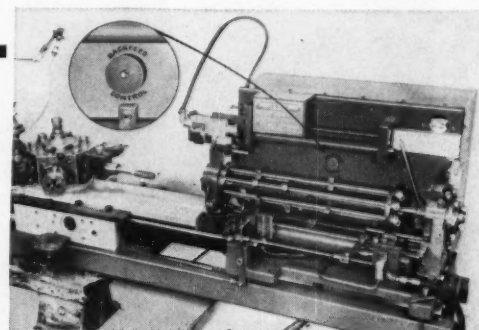
CONGRATULATIONS

New York, N. Y.

Dear Sir:

You have been publishing a series of articles on "The Practise of Management," by Peter F. Drucker, which is, I think the best exposition of a management philosophy I have yet to see.

TURRET BACKFEED on LYNN HYDRAULIC DRIVE



puts cross-slide operations on the **"HEX"**

Now you can rough going in, finish coming out on the same hex station. The LYNN Hydraulic Drive with the new Turret Backfeed makes it possible to take many operations off the cross-slide and put them on the "hex".

The rate of feed on the backfeed is independently adjustable and can be used on any or all turret stations. Putting operations such as finish turning I. D., inside chamfering, cutting thread reliefs and "O" ring grooves on the turret speeds production and improves quality.

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*Other Lynn Products include: Conversion Turrets,
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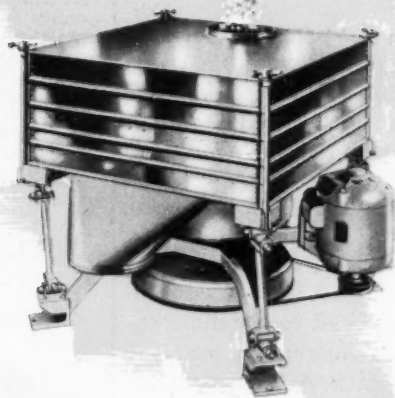
Grading and Cleaning Dry Granular Materials the Modern, *Profitable Way!*

Processors of dry granular products, who have installed this new, streamlined Allis-Chalmers sifter, report lowered costs, higher efficiency in their reduction and separation operations. For example:

- A soda ash manufacturer slashed \$1.50 per ton off his screening cost.
- A leading bakery chain cut sifter clean-up time in half.
- A starch manufacturer realized a 75% saving in floor space and a considerable reduction in power requirements.

The compact, high capacity *Circle* sifter provides a screening area equal to that of a single deck screen requiring four times the floor space. All-metal construction eliminates warping, splinters and hard-to-clean corners. Stacked deck design facilitates fast dismantling for cleaning and product changeover. Installation requires no structural changes. Gyrotory motion is vibrationless.

Your nearest A-C representative will gladly furnish further information. Or write Allis-Chalmers, Milwaukee 1, Wisconsin.



ALLIS-CHALMERS

Circle is an Allis-Chalmers trademark.



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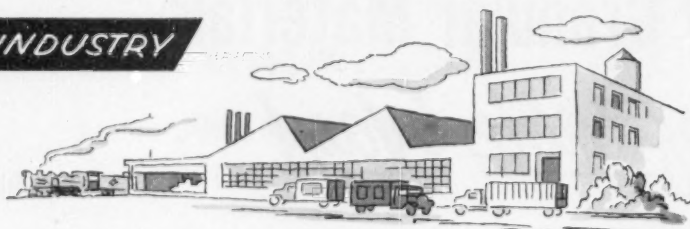
GOVERNMENT



Department of Agriculture
The Meat Inspection Branch of the U. S. Department of Agriculture maintains an active Filmsort file of over 250,000 meat labels used throughout the United States. Microfilmed copies

of labels are mounted in Filmsort Aperture cards, coded and punched for electric accounting machine sorting. For reference, the Department of Agriculture uses portable desk-top Filmsort Inspector viewers.

INDUSTRY



Jones and Lamson . . . Jones & Lamson Machine Company, large Eastern manufacturers of machine tools, are using over 120,000 Filmsort Aperture cards for engineering drawings. Microfilmed drawings are mounted

in 3½ x 5" file cards with pertinent information recorded on the face of the card. The Filmsort Surveyor with its 24 x 36" screen and automatic variable magnification is ideal for reference to engineering drawings.

BUSINESS



Inter County Title Company
One of the largest title companies in the United States, Inter County Title Guaranty and Mortgage Company, is now using close to 500,000 Filmsort Jacket cards for housing microfilmed

bases, the documents necessary to the issuance of a title insurance policy. Inter County offices use the desk model Filmsort Inspector reader, designed for use in ordinary office light, for reference to their microfilm files.

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NEW YORK

I was planning to write to ask you if reprints would be available, but I see in your September issue that Harper's will publish, so I take this opportunity to say thanks for bringing this fine work into print. And may I offer especial congratulations to Mr. Drucker?

Norton Smithe
Factory Manager
F. L. Smithe Machine Co. Inc.

FILMS FOR MANAGEMENT
St. Louis, Mo.

Dear Sir:

We are contemplating using some 16-mm. sound films on the technique of selling. These films are to be shown at a meeting of our salesmen in the very near future.

Your department "Films for Management" has listed, from time to time, various films in this category. We would appreciate it if you could send us a list of films covering this subject which might be available for our presentation.

E. K. Handlan

The Emerson Electric Mfg. Co.
In addition to films on selling, DUN'S REVIEW AND MODERN INDUSTRY has available lists of films on human relations, employee training, economic education, manufacturing techniques, management methods, and many other subjects.—Ed.

New York, N. Y.

Dear Sir:

This is just a note to tell you what a fine job we think you did on "In The Beginning" in the September issue . . . (page 53)

Your frank approach to the reasons we made the film does a lot more good, we think, than simply chalking it up to public service.

Arthur H. Lockard
Socony-Vacuum Oil Company

New York, N. Y.

Dear Sir:

As a result of your well-put-together and informative piece on "All I Need Is A Conference" in the (September) issue . . . the inquiries began floating in here like the proverbial herring.

John von Arnold
Henry Strauss & Co., Inc.

Letter may be addressed to Letters to the Editor, DUN'S REVIEW AND MODERN INDUSTRY, 99 Church Street, New York 8, N.Y.

ANOTHER

BIG STEP

FORWARD!

by

LUBRIPLATE LUBRICANTS

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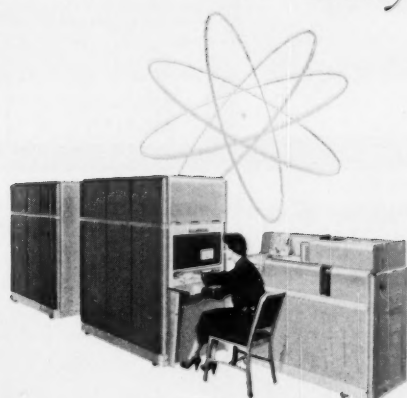


Croesus' cavalry stampeding at the sight of Persian camels

*Yesterday . . .
"The Fates" Decided*

In the 6th century, B. C., King Croesus of Lydia was told by the Delphic Oracles he could defeat the Persians. Relying on "The Fates" instead of the facts, he took on an enemy he should have known was too strong for him . . . and he was badly beaten. Lack of facts cost him his kingdom and his freedom.

Today . . . Facts Are What Count



The recent great strides in military science, pure science, commerce, and industry have resulted from modern man's ability to determine the facts and act accordingly.

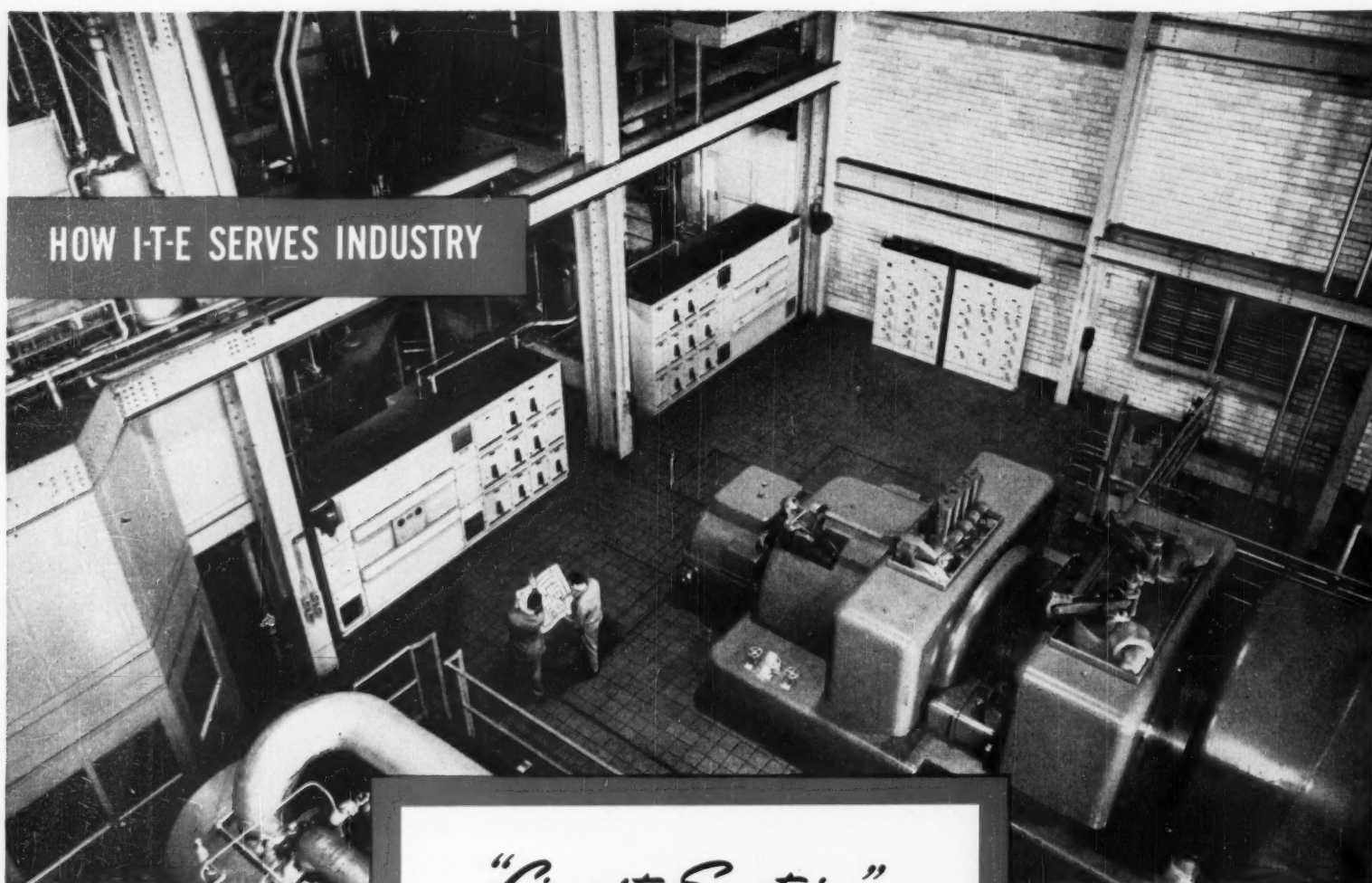
Tremendous advances have been made in the past few years in fact-finding machines. Through electronics, great masses of data that would have taken a lifetime to process can now be handled in a few days. Ordinary volumes of work can be done in minutes.

IBM
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By making "mathematical models" of specific processes, products, or situations, man today can predetermine probable results, minimize risks and costs.

World's Leading Producer of Electronic Accounting Machines
INTERNATIONAL BUSINESS MACHINES, 590 Madison Ave., N. Y. 22, N. Y.

HOW I-T-E SERVES INDUSTRY

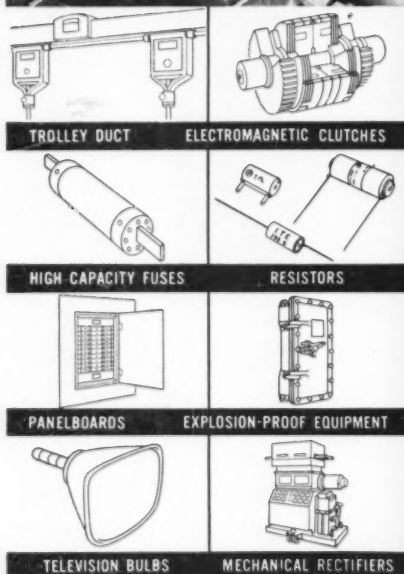


"Circuit Sentries"

PROTECT A POWER PLANT

The central plant—major source of power—makes available a vast supply of electrical energy. *Maximum* electrical protection assures the *maximum* continuity of service industry and community demand. For more than 65 years, America's power plants have depended upon I-T-E protective equipment to guard their vital machinery and circuits.

Today, I-T-E's scope of manufacture includes a well rounded and diversified line of electrical products.



TROLLEY DUCT

ELECTROMAGNETIC CLUTCHES

HIGH CAPACITY FUSES

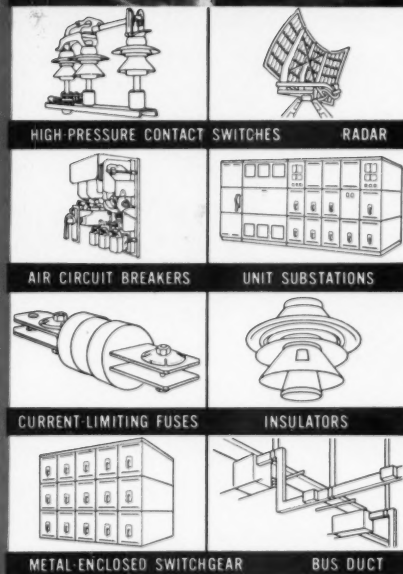
RESISTORS

PANELBOARDS

EXPLOSION-PROOF EQUIPMENT

TELEVISION BULBS

MECHANICAL RECTIFIERS



HIGH PRESSURE CONTACT SWITCHES

RADAR

AIR CIRCUIT BREAKERS

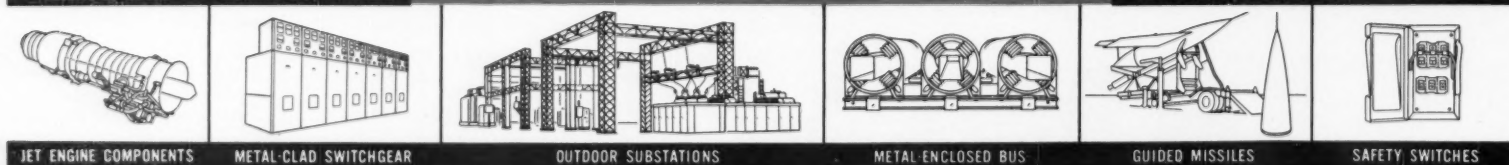
UNIT SUBSTATIONS

CURRENT-LIMITING FUSES

INSULATORS

METAL-ENCLOSED SWITCHGEAR

BUS DUCT



JET ENGINE COMPONENTS

METAL-CLAD SWITCHGEAR

OUTDOOR SUBSTATIONS

METAL-ENCLOSED BUS

GUIDED MISSILES

SAFETY SWITCHES



I-T-E CIRCUIT BREAKER COMPANY Philadelphia and Greensburg, Pa.

BULLDOG ELECTRIC PRODUCTS COMPANY • THE CHASE-SHAWMUT CO. • EASTERN POWER DEVICES, LTD. • VICTOR INSULATORS, INC.

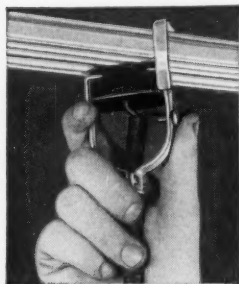
Install flexible Universal Trol-E-Duct



BULLDOG

ELECTRIC PRODUCTS COMPANY
A Division of I-T-E Circuit Breaker Company

Connect lights with but a simple twist



Imagine the convenience and savings. With Bulldog Universal Trol-E-Duct® in your plant you can move lighting fixtures in minutes, even shift around your entire lighting arrangement . . . without rewiring, without downtime, without spending an extra nickel for electrical materials.

That's because Trol-E-Duct provides an outlet every inch along its length. To connect a light, all you do is insert a twistout plug or mobile trolley anywhere into the bottom of the duct. To add extra lights, just attach more fixtures and twist in connections while the current is on. There's no downtime. No conduit or cable to install or splices to be made. No special supports to change or buy, either. Bulldog Universal Trol-E-Duct both

feeds and supports lighting fixtures. Ideal for light duty or portable hand tools, too.

Investigate Universal Trol-E-Duct for your company. It is far easier and faster to install than fixed wire and conduit systems. It pays for itself many times over in convenience and in *cash saving* it creates by eliminating downtime and materials waste.

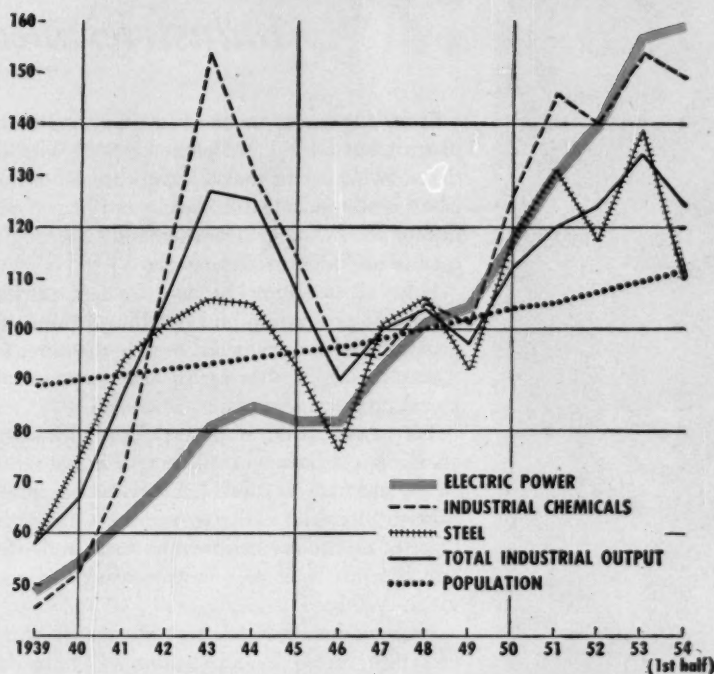
See your electrical contractor for full details, or write to Bulldog Electric Products Company, Detroit 32, Michigan. Ask for Bulletin UT-650. Export Division: 13 East 40th Street, New York 16, New York. In Canada: Bulldog Electric Products Co. (Canada), Limited, 80 Clayson Road, Toronto 15, Ontario.

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PRODUCTION INDEXES

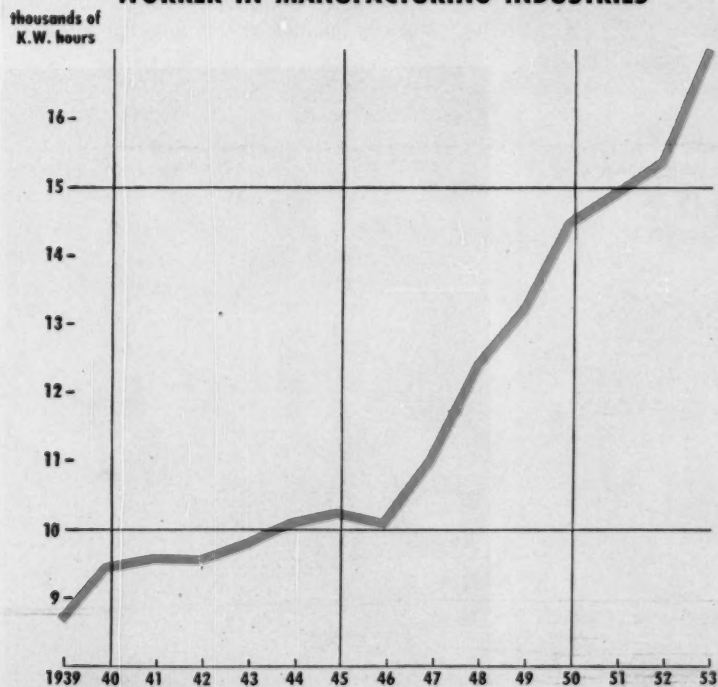
(1947-1949 = 100)



Sources: Bureau of the Census; Federal Reserve Board

Steady climber, electrical production continues to rise even when other industries falter—proof of electricity's key importance. Industry's share of electrical production is growing, too, as the chart below indicates.

AVERAGE ANNUAL KILOWATT HOURS PER WORKER IN MANUFACTURING INDUSTRIES



Source: Edison Electric Institute

Two-hundred-and-fifty strong, the average production worker approaches his job. That's how much extra energy electricity places at his disposal. By himself, he can exert but 67 watts of energy in a full working year.

Your stake in the

ELECTRICAL FUTURE

ANNESTA R. GARDNER

Industrial Editor

*It can bring your company new markets,
higher productivity, greater profits.
Here is how—and what you can do right now.*

WHETHER it comes from burning coal or oil, falling water, exploding atoms, or solar radiation, electricity will play an ever-expanding industrial role in the years ahead. It will help to produce better products at lower cost, create new products, and open brand-new markets for producers of everything from fibers to fork trucks.

Electricity can be industry's most versatile servant. It can be used to heat and cool, harden and soften, move products and packages and clamp them in place. It will remove undesirable elements from processed materials and make it easier to add desirable ones. It can speed communications, promote safety, and preserve and protect products.

In the home, there is almost no job that electricity can not do to-day. In addition to such familiar electrical equipment as radio and television, toasters, irons, percolators, ranges, freezers, broilers, washers, and driers, there are new electrically operated devices like the heat pump which can provide year-round heating and cooling. There is even a plug-in electric lawnmower for the front yard.

Small wonder, then, that electrical production and consumption are growing like cornstalks in July.

But what does this remarkable expansion mean to the individual manufacturer? How can he make better use of electricity in his plant? How can he use it in his product? Where can he find new marketing opportunities?

Charts, photographs, and text on this and the following seven pages help to answer these questions.

Here, new products and new production methods are emphasized. It should be noted, though, that few companies are taking full advantage of the electrical equipment that has long been available—either on their production lines, or as an avenue for sales.

Automation, for instance, is not really new. It is just a new name for mechanization of handling in and between processes—mechanization that can be, and often is, accomplished by combining standard electrical switches and relays with regular materials-handling equipment.

As to marketing opportunities, manufacturers of electrical equipment need everything from ventilators to vending machines. They use paper and textiles, paints and enamels, and all sorts of chemicals and plastics. And, because these companies are growing as electrical production and consumption grow, they constitute an expanding market. This year, for instance, the electrical machinery and equipment industry is spending almost half-a-billion dollars on new plant and equipment, nearly twice as much as it spent even in 1948, and ten times as much as it spent in 1939.

Have your sales to the electrical industry, and your use of its equipment expanded by similar amounts? Check the following pages to see how you can reach both goals.

ELECTRICAL FUTURE

Electricity industries meet

Electricity brings mass production to molded plastics, lets an old, old plant keep up with the times, helps a tire maker compensate for high labor costs, aids textile, steel, and paper producers in meeting new demands for higher quality and closer tolerances.

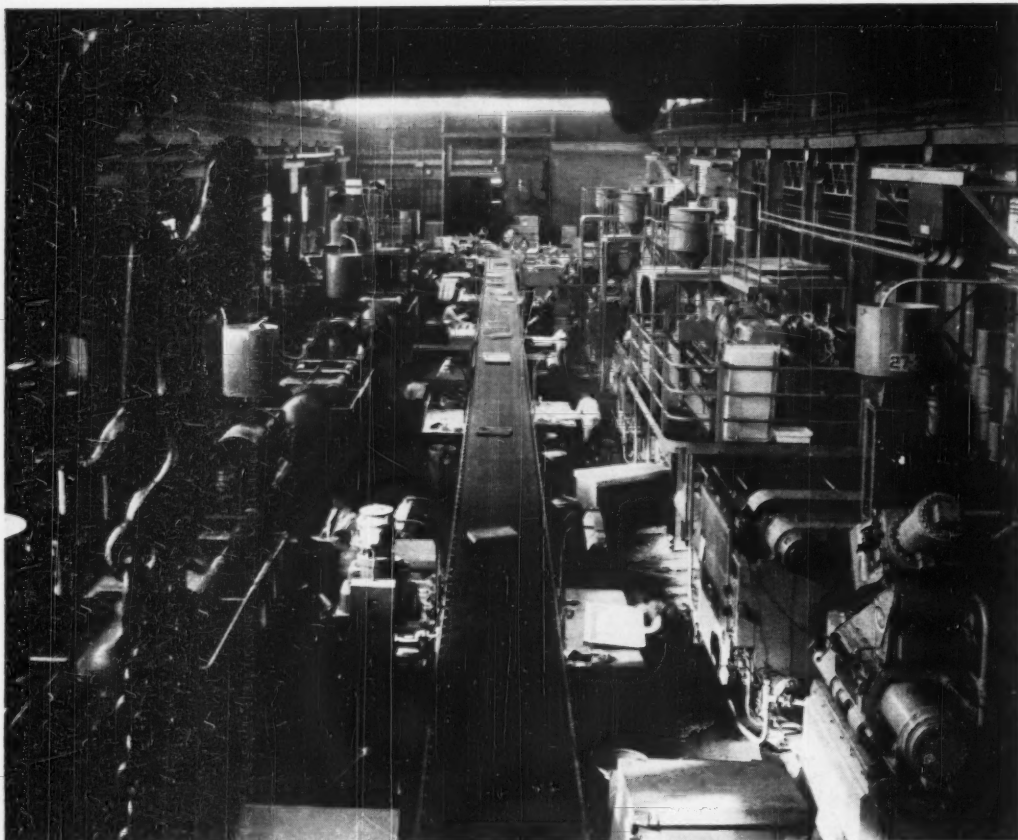
How? By opening the door for fast, efficient, automatic production and handling equipment; providing new ways to test, weigh, measure, and sort materials; and bringing new ways to safeguard products and plant personnel.

To the industrial producer, electrical methods offer many advantages. Electricity is fast-acting, clean, and easy to control. Electrical equipment is often safer and easier to maintain than other types of machinery designed to do a similar job, and it lends itself to remote control and automatic cycling.

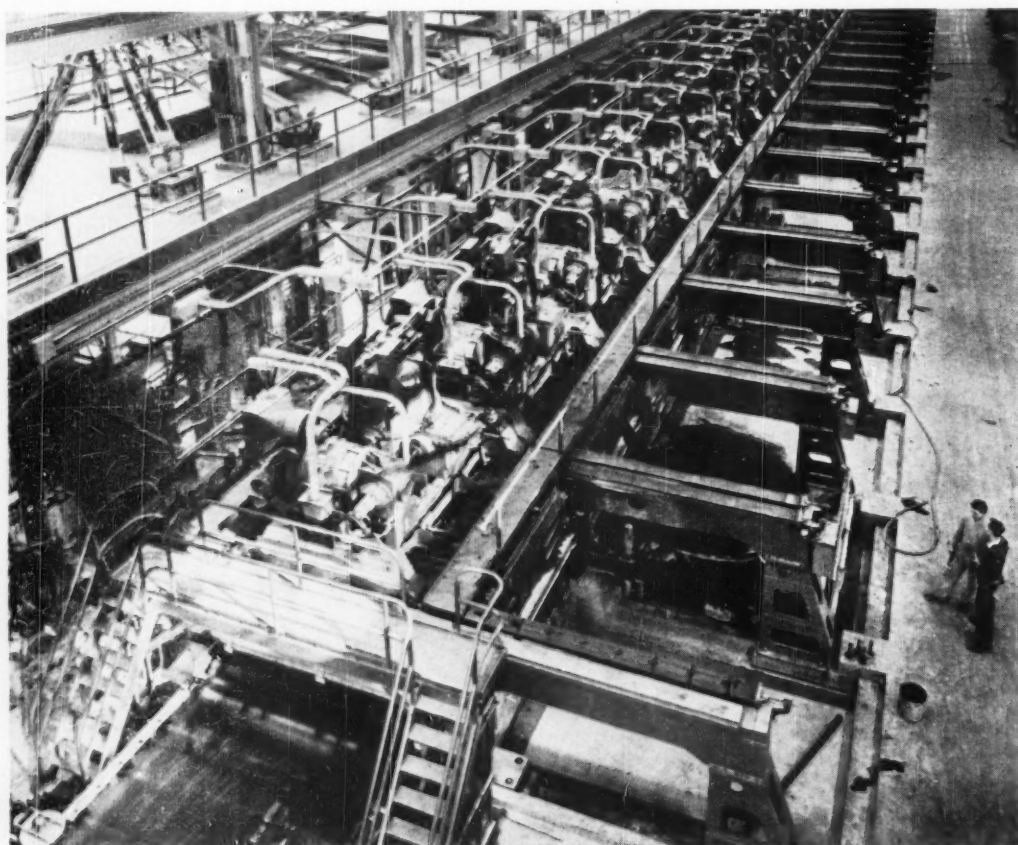
No wonder, then, that producers of almost everything from food to automobiles are doubling and tripling their use of electricity.

Just a decade ago, for instance, most auto plants were laid out for about fifteen watts of electric power a square foot. Now, the Electrical League of Cleveland reports, new, automated production units like the Ford engine plant (see page 38) are blueprinted for more than four times as much—with some going as high as 65 watts a square foot.

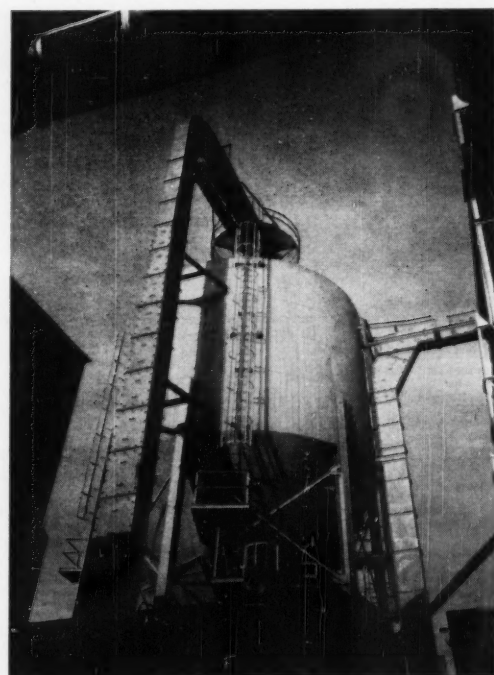
In the food industry, new and growing uses for electricity include precooking (of sausages,



Big plastics moldings are turned out in record-breaking numbers with minimum physical effort in mechanized General American Transportation plant. Presses are fed by overhead crane, molded parts removed by belt conveyor. Monorails serve finishing and assembly areas. All are electrically operated.



Motors by the dozen make plate glass production almost fully automatic in Libbey-Owens-Ford Rossford plant. Both sides of the plate are ground at the same time as it moves through new twin-grinder continuously and automatically. Raw materials handling and final polishing are also mechanized.



One man handles seven tons of carbon black an hour by remote control at Dayton Rubber Company. Zippered rubber belt carries material from

ELECTRICAL FUTURE

helps these new demands

for example), tramp iron removal, package inspection, automatic weighing and batching of cake mixes, "cold sterilization" (use of electron beams to sterilize heat-sensitive foods), and frozen foods, not to mention such general applications as lighting, air conditioning and humidity control, mechanized conveying, and automatic pallet loading.

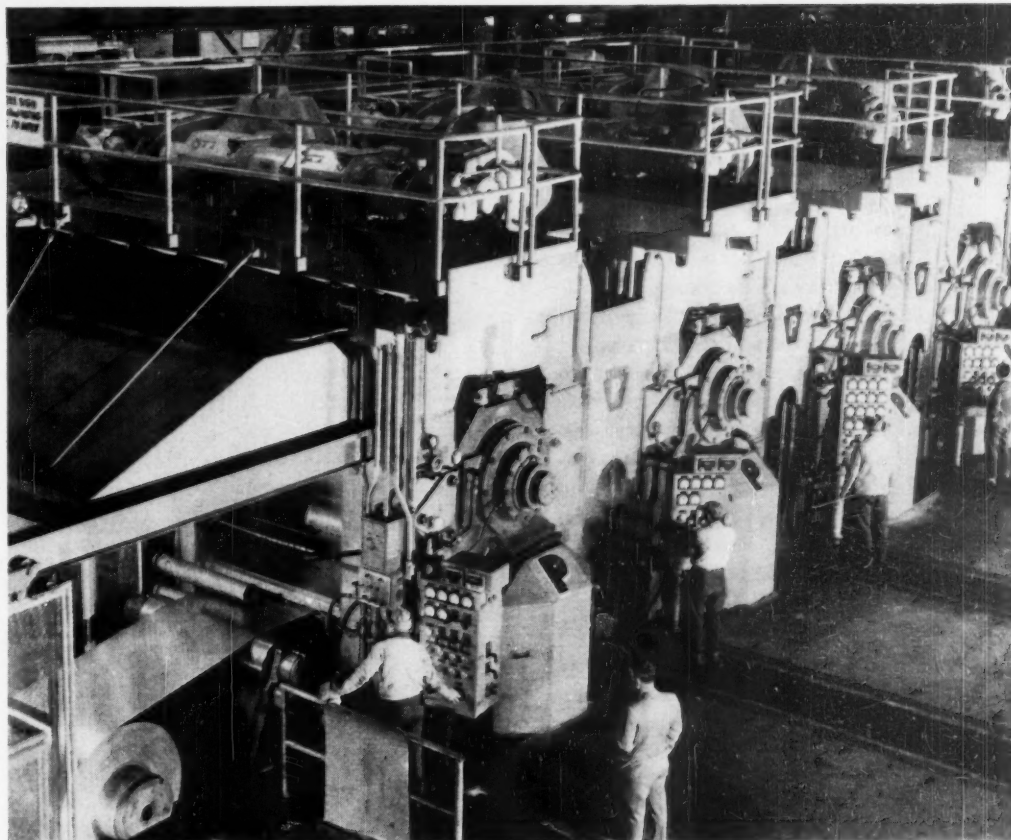
This does not mean, of course, that electricity is the only way to boost productivity or cut costs. It has plenty of competition:

Permanent magnets can, and often do, replace electromagnets for lifting, positioning, and tramp iron removal. Radiant gas burners offer fast, clean, economical heating. Chemical (non-electrolytic) methods may be used for metal plating and polishing.

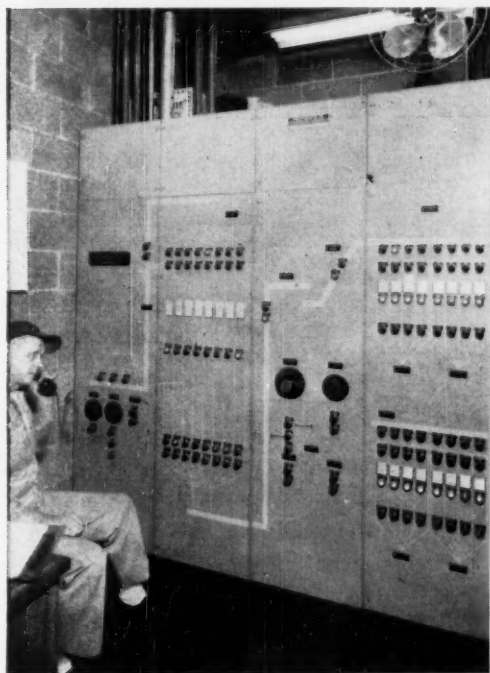
It would be foolish and shortsighted to choose electrical equipment where other means can serve better—or where the job is as rapidly, economically, and safely done by hand.

But, the need for increased productivity, the growing trends toward higher processing temperatures and pressures, and use of such dangerous materials as radioactive isotopes make mechanization, automatic cycling, and remote control essential—and electricity can play a major role in achieving those goals. Pictures and text on the following pages show specific examples of methods and equipment you can use.

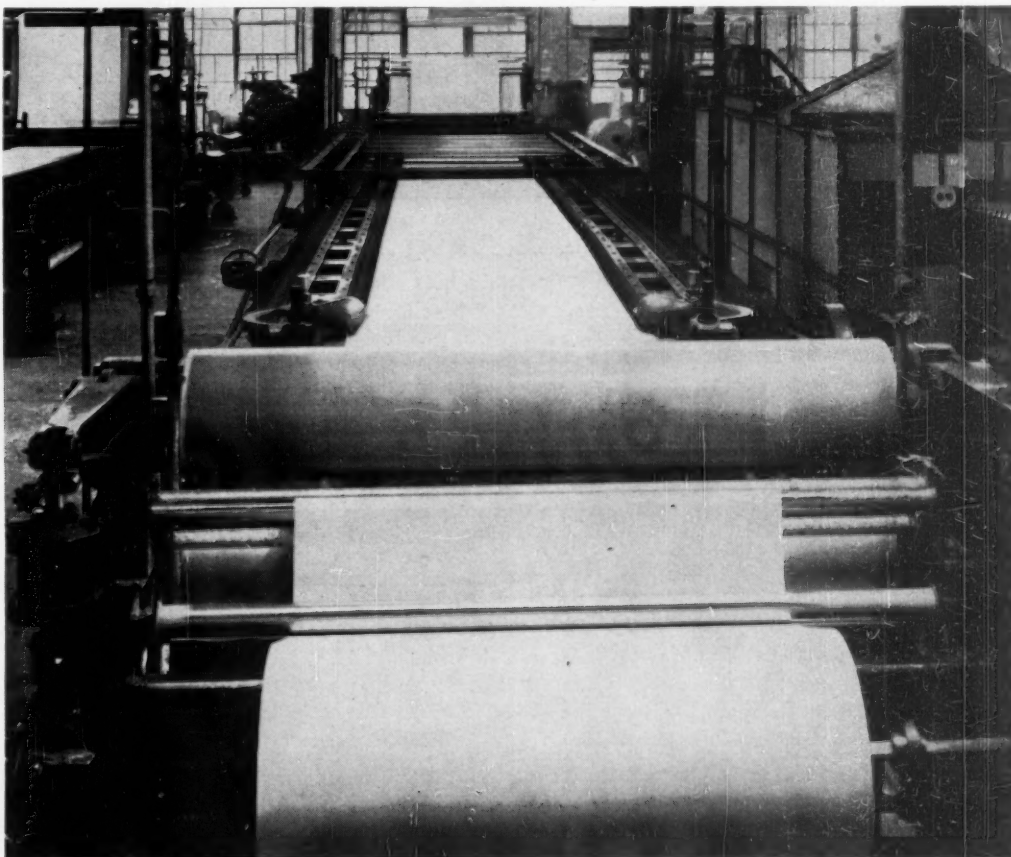
Continued on page 34



Nearly 20,000 horsepower goes to work at a touch of the hand in new Pittsburgh Steel cold strip mill. Magnetic amplifiers control stand and reel drives. X-ray thickness gage with continuously recording indicator is mounted at mill's delivery end. Top operating speed is over 3,000 feet a minute.



railroad cars to storage tank from which it is fed to plant. Tire-making process itself is operated almost entirely by push-buttons in this plant.



Textile finishing is speeded by new electrical equipment. Chromalox far-infra-red radiant heaters mounted above tenter frame cure and dry impregnated cloth at the rate of 60 yards a minute. Modern textile plants are using more and more electrical equipment to boost productivity, cut costs.

ELECTRICAL FUTURE

How one plant meets competition— electrically

Like many another plant, Carborundum's Refractories Division at Perth Amboy, N. J., outgrew its breeches, electrically speaking.

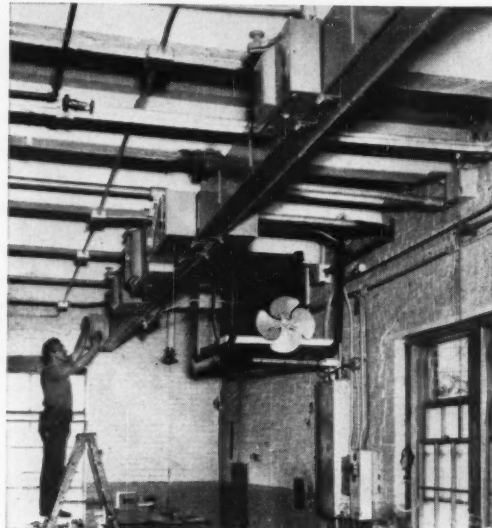
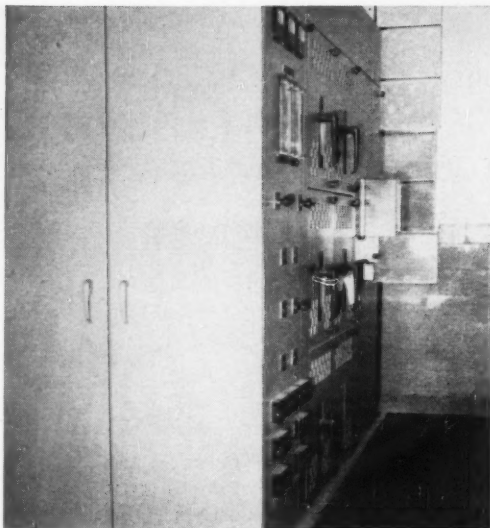
During and after World War II, its maximum power demand had more than doubled. The old electrical distribution system was barely able to carry the load, much less accommodate the new electrical equipment that was becoming available. Electrical outages wasted valuable production time. Unsafe conditions prevailed. Yet no one incident was serious enough to demand immediate attention, and the plant kept limping along, doing the best it could.

Then came the era of competition and the real need to slash costs and improve product quality. Carborundum's management, recognizing the fact that future savings, and future progress, would call for ever-increasing use of electricity, decided to go all-out for a new and really efficient electrical system.

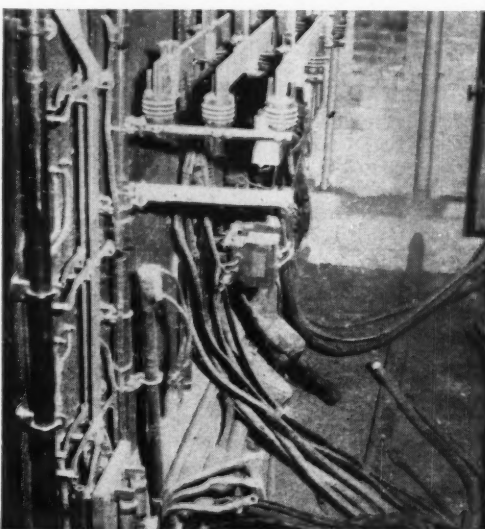
Result: the modern set-up pictured here.

To-day, the Perth Amboy plant is ready and able to accommodate the newest and best production equipment in its field. It has practically eliminated downtime caused by electrical failures. And it is saving money on maintenance and on the cost of electricity itself.

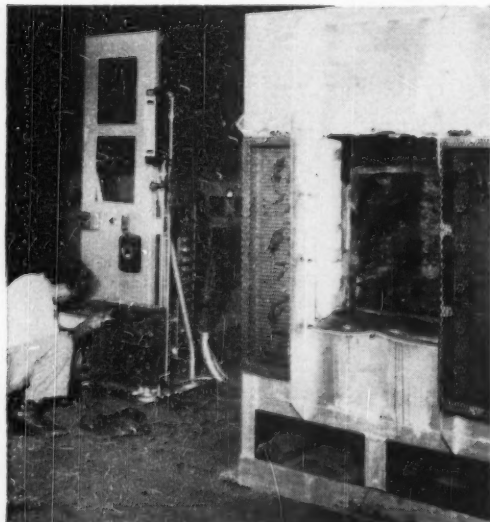
Carborundum's electrical modernization was actually a three-pronged effort: the new distribution system; new test equipment that makes it possible to check circuit breakers, heater elements, and other components without removing them from working positions; and a new record-keeping set-up that puts maintenance on a planned, time-, cost-, and trouble-saving basis. It's one many other plants might well adopt.



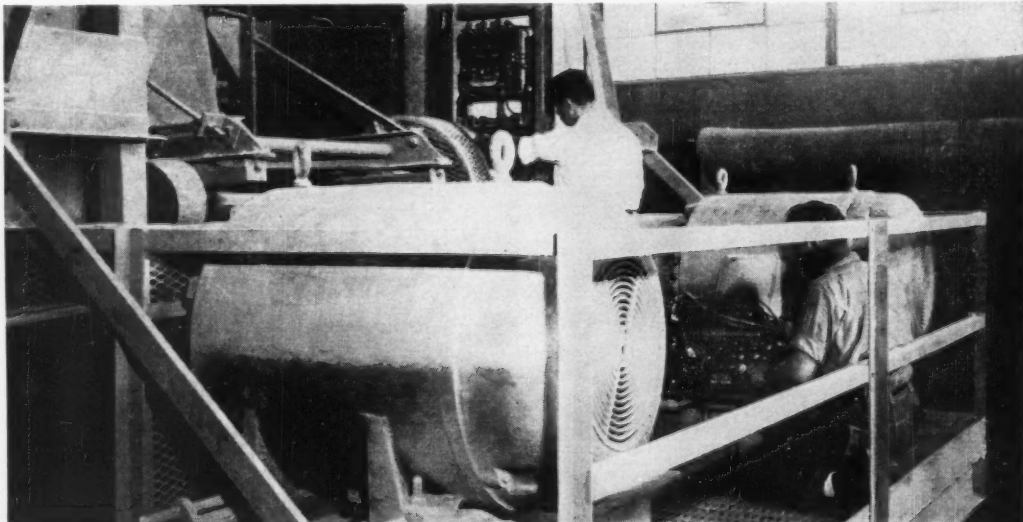
New distribution system at Carborundum's Refractories plant features fully enclosed switchgear, bus conductors; is safe, easy to service. Feed-in duct carries 2,000-ampere current; distribution ducts 800 and 1,000. Instruments meter current in each conductor, record power factor for entire system.



Old distribution system was safety engineer's nightmare. Exposed buses were dangerous and impossible to keep clean. Breakdowns were frequent, and current available was not sufficient to accommodate new, efficient, electrically heated high-temperature kilns and much-needed grinding mills.



New automatic kilns can be installed now that new distribution system is in operation. This one uses Globar high-temperature elements.



Preventive maintenance is important factor in efficient operation of refractories plant. Carborundum uses Multi-Amp testers to check overload relays and other safety devices regularly, head off trouble before it starts. These 75-horsepower high-torque motors are used to drive nine-foot pan mill.

Is your plant ready for the electrical age?

99 Ways to use electricity in your plant

Are you taking full advantage of to-day's electrical production methods? Check this list to see if you can cut costs and improve product quality by using electricity for:

☐ **PROCESS CONTROL**

New weighing, metering, counting, sorting, and recording equipment, using many electrical and electronic devices can put processing on a safer, more-automatic basis.

☐ **MACHINING**

Electrospark, electroarc, and ultrasonic techniques put electricity to work in new ways to slice through the hardest metals and ceramics.

☐ **HEAT TREATING AND CURING**

Electric ovens and furnaces, induction and dielectric heaters, infra-red lamps, radiant heating panels, and flexible heating elements are ready for annealing and hardening metals, curing plastics and rubber, drying paints and adhesives.

☐ **FINISHING**

Electrostatic paint spraying, electropolishing, electrolytic grinding, high-vacuum coating are but a few of the new developments here.

☐ **MATERIALS HANDLING**

Almost every type of handling equipment can be operated electrically to eliminate hard labor and speed lifting, positioning, and transportation.

☐ **INSPECTION AND TESTING**

Electrical and electronic gages, ultrasonic flaw detectors, X-rays and fluoroscopes, make it easier to check products and packages.

☐ **COMMUNICATIONS**

Efficient production demands rapid, accurate communication. There are new paging systems, facsimile printers, and industrial television, as well as in-plant radio and telephone.

☐ **OTHER USES**

Electronic calculators and simulators simplify design and engineering. Ultraviolet light can promote chemical reactions. Electrostatic precipitators aid pollution control and recovery of airborne wastes. Electrically operated hand tools are useful almost everywhere. Indeed, from product planning to packing and shipping, the possibilities of electricity are almost unlimited.

IF YOUR plant has passed its fifteenth birthday, its electrical system may already be too old for comfort. It's not only venerable set-ups like the one pictured on the opposite page that need replacement to-day. Industry experts say few plants built even as recently as 1940 have electrical systems capable of supporting the amount of electrical equipment they now need—much less accommodate the load imposed by such new techniques as automation (see February, page 62) and ultrasonics.

In the past fifteen years, electrical equipment of all kinds has been vastly improved. Switchgear, wire and cable, heating and cooling equipment, motors and lamps, all offer new dividends in efficiency, safety, and flexibility of use.

For in-plant distribution of electric power, there are new load-center systems with self-contained, "packaged" substations that are safer, easier to install and maintain than older systems. They're more efficient, too, because they carry high-voltage current close to the point of use, eliminating long, low-voltage secondary leads and the losses they entailed.

To supply increasing demand for direct current (for welding, battery-charging, and electrochemical processing), there are new mechanical and metallic rectifiers as well as new and better

mercury arc units and motor generator sets.

Better control mechanisms—adjustable-speed drives, magnetic amplifiers, electromechanical devices—permit more-accurate regulation of motor performance and help to increase the precision of machine operations.

Motors themselves feature new and better insulating materials that permit higher operating temperatures and make it possible to pack more power in less space. And new bracket and housing designs make it possible to mount motors in almost any desired location without interfering with performance or risking explosions and serious motor damage.

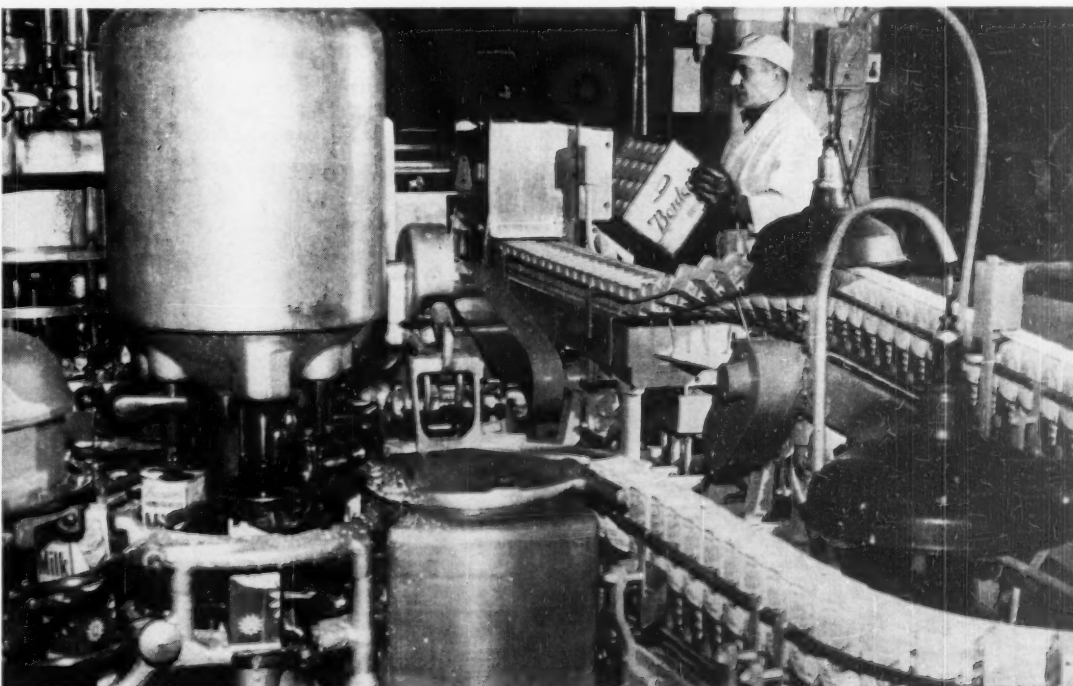
Improvements in other types of electrical equipment are equally valuable. Electrical heating, cooling, and lighting, for instance, have made tremendous strides in recent years.

Infra-red radiation is now used to dry paints, inks, and enamel frits, cure textile finishes, pre-heat metals for welding, dehydrate foods, and for hundreds of other jobs.

Induction heating is taking its place as a major metal-treating technique—for annealing, brazing, hardening, preheating of forging billets, and the like.

Dielectric heaters soften plastics for molding,

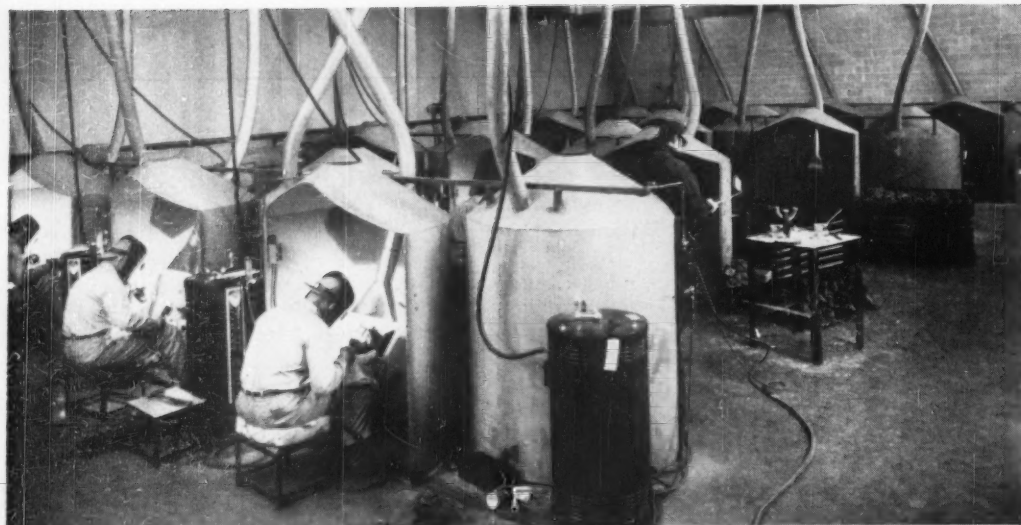
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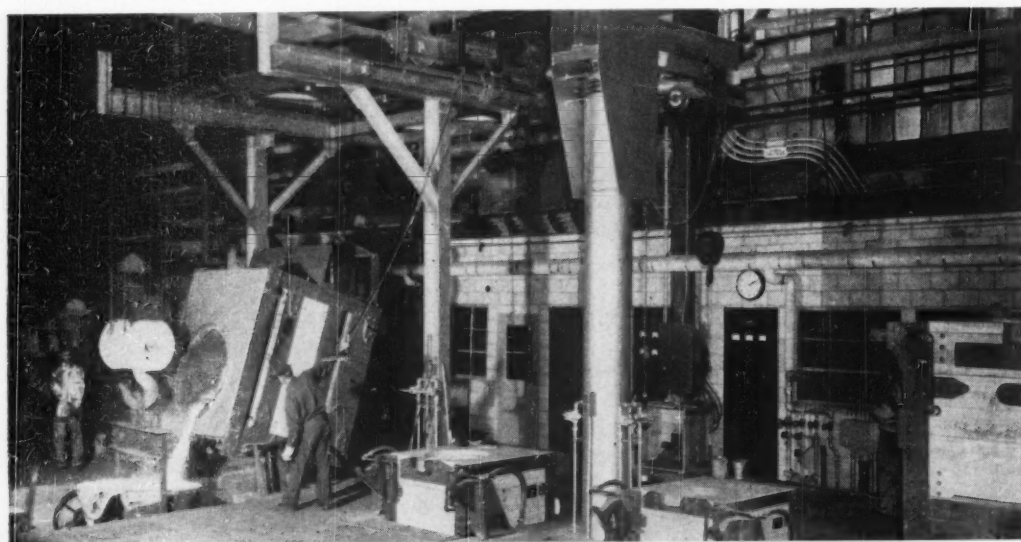
Packaging is only one of many operations that can now be made almost completely automatic with electrically operated equipment. In this Borden plant, fiber milk containers are filled at the rate of 110 a minute, then moved to Standard-Knapp packer that automatically groups them for casing.

ELECTRICAL FUTURE

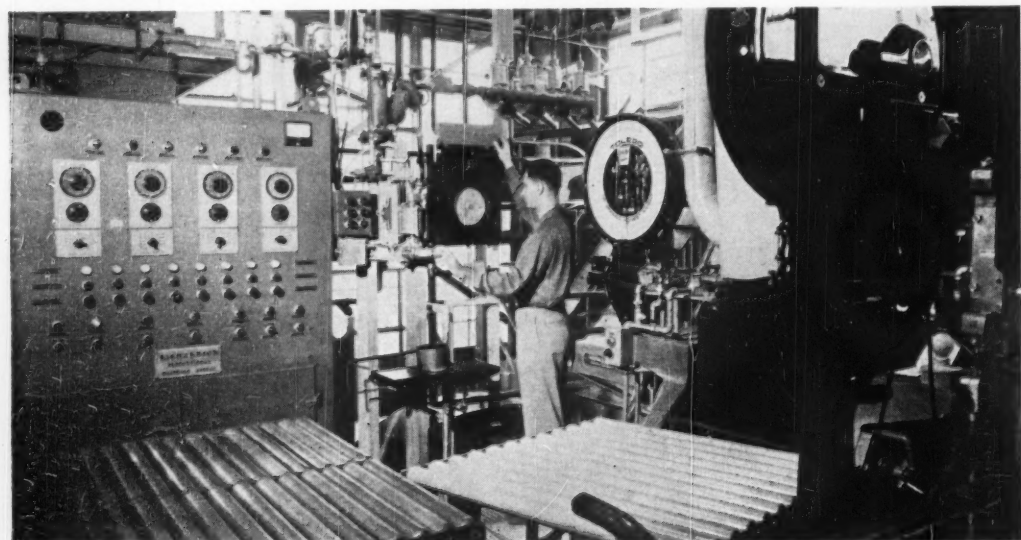
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Arc welding, like many electrical techniques, supplements rather than eliminates older methods. Welding shop at new Chicago Pneumatic plant is equipped for both arc and torch. Plant itself is highly electrified, has load-center system with four substations. Walter Kidde Constructors built it.



Melting of metals for centrifugal casting is clean, fast, and uniform when high-frequency induction furnaces are used. Sandusky Foundry & Machine Company reports these new units make it possible to handle a wider range of ferrous and non-ferrous metals, produce castings of uniformly high quality.



Batching becomes nearly automatic with new Richardson Scale Company proportioning system at Harris Products rubber goods plant. Carbon blacks for each batch are selected by remote control and weighed cumulatively on a single scale. Conveyor in foreground handles crude rubber slab stock.

cure synthetic enamels, and help in processing chemicals. And they're paving the way for such new food products as precooked meats.

Electrical resistance heaters in wire, strip, ring, cartridge, and tubular form can be built into dies and processing rolls, wrapped around kettles, installed in ducts, or immersed in liquids.

Electrical refrigeration has come a long way, too. Low-temperature processing improves the qualities of synthetic rubber and makes less hazardous the handling of explosive materials. Electricity can be used to produce sub-zero temperatures that facilitate assembly of tight-fitting parts, make aluminum easier to form, permit use of mercury patterns for precision casting and speed drying of heat-sensitive materials.

For space heating and cooling, there are all sorts of new electrical developments ranging from heat pumps to electrically conductive rubber sheeting and transparent glass radiant heating panels. Unit heaters are finding application as a primary heat source even in areas where power costs are not extremely low, and heating demands are fairly high.

Two years ago, for example, Melin Tool Company became the first in Ohio to install an all-electric heating system, replacing its old central boiler plant with small, overhead-mounted unit heaters. According to the Electrical League of Cleveland, the new system saves several hundred dollars in annual costs and provides better heat distribution and closer control of temperature. The plant is also a lot cleaner, and 8,700 cubic feet of badly needed space has been freed for production and storage.

Progress in plant lighting over the past decade or two has been little short of amazing. Looking at the industrial plants of to-day, it's hard to realize that fluorescent lighting made its commercial debut just sixteen years ago. Few new developments have gained such wide acceptance in such a remarkably short time.

There have been many improvements in mercury lamp and incandescent lighting, as well. But perhaps the biggest change in industrial lighting is in the amount of light that is now provided for ordinary plant operations. Twenty, or even fifteen years ago, it was a rare plant that had as much as 20 foot-candles a square foot. Now, production areas are being designed for 40 or even 50 foot-candles. Industry has learned that good lighting is well worth its cost.

Any company which put off electrical modernization because it didn't seem too urgent, or because new and better equipment seemed just beyond the horizon, had best get started now. The new equipment is here, and competition makes it necessary and worthwhile to take advantage of it.

Check the list on page 35 to see if you're using electricity in all the ways you can. Then, for a look at electrical progress to come, and the marketing opportunities it unfolds, see pages 37 and 38.

ELECTRICAL FUTURE

Fitting your business to the electrical age

THE impressive amount of electrical equipment already at work in the home, office, and manufacturing plant might make one think that the big marketing opportunities in the electrical field are past. Far from it.

True, refrigerators and electric irons are fairly close to the saturation point. But even this market is wide open when one considers the opportunities for replacement of older models. And the potential for air conditioners, ranges, dishwashers, freezers, and even for steam irons and electric mixers has barely been scratched.

In industry, increasing mechanization will bring greater demand for motors, switches, wiring, relays, and all sorts of automatic gaging

and monitoring equipment. It places new emphasis on communications, and brings a need for better record-keeping systems.

Full control of plant air supply, both incoming and outgoing—to safeguard product quality, increase employee comfort, and eliminate air pollution—is only just beginning.

New production techniques like ultrasonics, and the growing importance of infra-red, induction, and dielectric methods, will vastly expand the usefulness of electricity.

And, as the demand for electrical equipment grows, it can mean new marketing opportunities for makers of almost every kind of product.

For instance, Hercules Powder Company, re-

porting on 1953, says: "The year was outstanding for the growth in the output of several items. . . . Production of Parlon (chlorinated rubber) climbed upward throughout 1953 in almost the same ratio as air conditioning. . . . More and more industries, plus, for the first time, private housing below the luxury class, demanded air-conditioning units. . . . This resulted in increased demand for Parlon-based paints [which are] especially effective in combatting corrosion from dripping water and condensation."

That shows how the growth of one industry which uses electricity sparks the growth of another. Actually, it starts a chain reaction which

How will it grow?

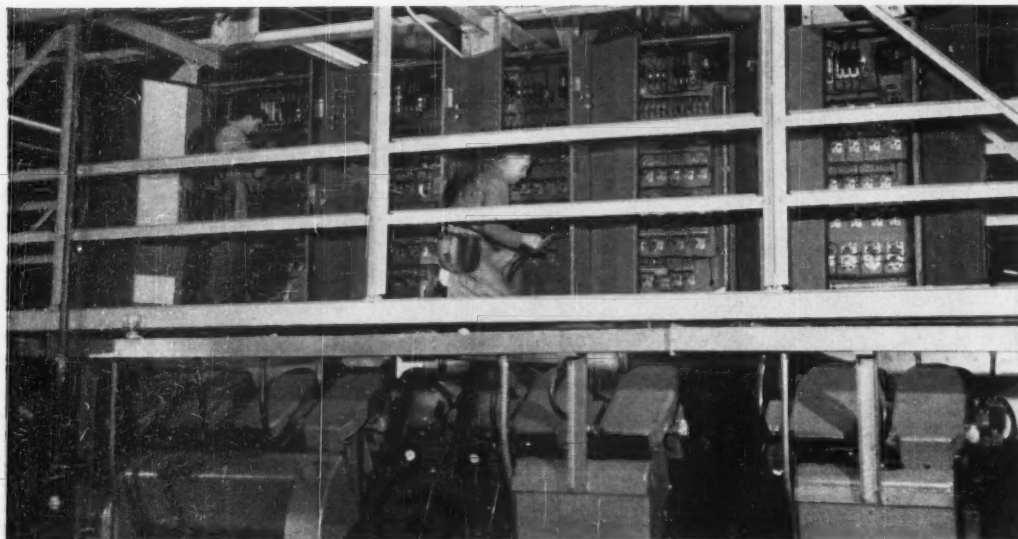
Bright indeed is the future predicted by industry leaders for electricity and its products. But predictions are not promises. Population growth and new-product development, the two factors most frequently cited as the bulwarks of electrical expansion, will not alone

guarantee expanding markets. Electricity has plenty of competition, both direct and indirect. It will take intensive and constant effort by everyone connected with the electrical industry and its products to make these predictions come true.

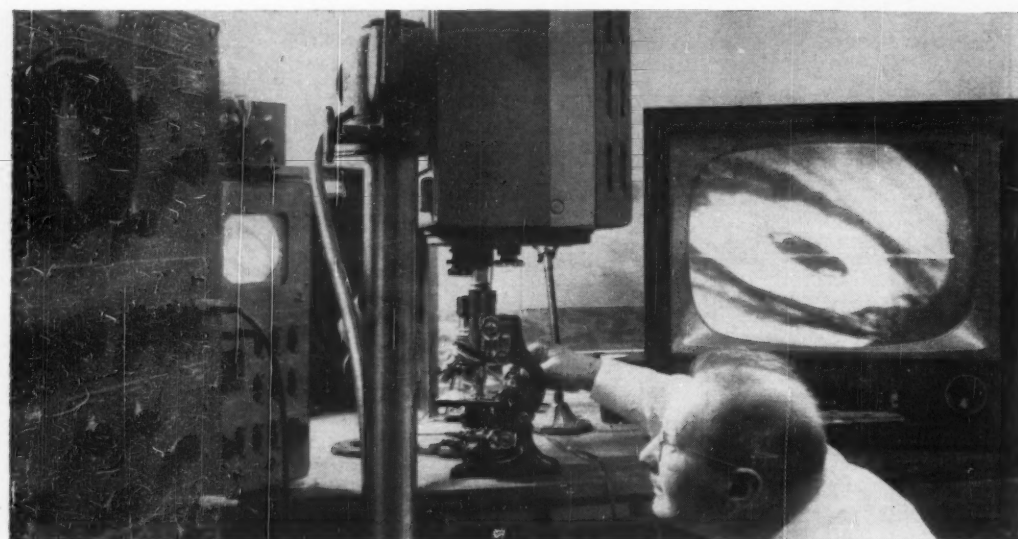
THIS SEGMENT OF THE ELECTRICAL INDUSTRY	WILL EXPAND THIS MUCH IN NEXT DECADE	FROM A CURRENT LEVEL OF	TO THIS POINT BY 1964	PREDICT THESE INDUSTRY LEADERS
Peak load capacity of U.S. interconnected power systems	over 90%	81.6 mil. kw	155 to 185 mil. kw	Walker L. Cisler, President, Detroit Edison Company, reporting for the Edison Electric Institute Electric Power Survey Committee
Total industrial consumption of electrical energy	55%	257 bil. kwh	over 400 bil. kwh	J. H. Jewell and Tomlinson Fort, Vice-Presidents, Westinghouse Electric Corporation, in talks to National Association of Electrical Distributors and Edison Electric Institute
Consumption of electrical energy by these industries:				
Chemical	58%	38.6 bil. kwh	61 bil. kwh	
Steel	over 100%	30 bil. kwh	61 bil. kwh	
Aluminum	over 50%	25 bil. kwh	39 bil. kwh	
Rubber	58%	5.1 bil. kwh	8 bil. kwh	W. V. O'Brien, Vice-President, General Electric Company, in talk to National Federation of Financial Analysts Societies
Textile	50%	12.7 bil. kwh	19 bil. kwh	
Paper	100%	23 bil. kwh	46 bil. kwh	J. H. Jewell, Vice-President, Westinghouse Electric Corporation in talk to NAED
Consumption of electricity for industrial lighting	60%	22 bil. kwh	38 bil. kwh	
Consumption of electrical energy for air conditioning	230%	13.8 bil. kwh	45.4 bil. kwh	Cloud Wampler, President, Carrier Corporation
Air conditioning—total retail sales	150%	\$2 billion	\$5 billion	
Annual sales of electronic equipment	over 60%	\$8 billion	over \$13 billion	Don G. Mitchell, Board Chairman, Sylvania Electric Products, Inc.
Number of heat pumps installed for home heating	1,500%	a few thousand	over ½ million	W. V. O'Brien, Vice-President, General Electric Company.
Average household investment in electrical appliances	almost 300%	\$1,300	\$5,000	Philip D. Reed, Board Chairman, General Electric Company, in talk to Boston Advertising Club and Edison Electric Institute joint meeting

ELECTRICAL FUTURE

Continued



Automation and the development of multioperation transfer machines vastly increases demand for electrical equipment, both for power and instrumentation. This central power panel, for instance, is just one of many used to control in-line machine tools at Ford's new Cleveland Engine plant.



Industrial television is destined to grow as a research tool as well as a means of in-plant communication and control. Here, Du Mont television camera and receiver join hands with a cathode-ray oscillograph and a standard laboratory microscope in a brand-new technique for studying living cells.



Portable power will open new opportunities for use of electrical equipment in the field. New International Harvester "Electrall" generating system, still experimental, is designed for mounting on truck, as here, or farm tractor to supply power for lighting, portable tools, motor-driven machines.

extends far beyond electrical products themselves.

For example, the desire to increase air-conditioning efficiency and reduce heat losses is directing new attention at building construction. The Structural Clay Products Institute notes that present trends in building design call for reduced wall thicknesses and increased window area. This is just the opposite of what is required for efficient use of air conditioning. So, looking toward future problems and future markets, the SCPI is sponsoring heat-flow studies, aimed at finding out how best to design brick and clay walls to fit both needs.

Finally, what effect will atomic energy and solar energy have on the electrical future?

To some extent, they will provide competition for present-day electrical equipment. Radioactive isotopes, for instance, are taking some jobs from X-ray machines and electrical thickness gages. But they are also creating a new demand for electrical and electronic equipment in the form of amplifiers, counters, meters, and recorders.

Likewise, ten or 20 years from now, some (but by no means all) industrial plants may be considering nuclear reactors instead of stoker-fired boilers for new power plant construction. They may also be considering solar batteries or solar "hothouses" (see July, page 36).

But, a decade from now, the vast majority of industrial plants will still be depending on power from water and conventional fuels. As a matter of fact, the atomic energy program as a whole is likely to be a net consumer of electrical energy as far ahead as 1975. (It now takes a good 5 per cent of all the electric power that is produced—an amount equal to the total consumption of the textile industry.)

As to solar energy, the lighting industry's Diamond Jubilee Committee predicts that its first use in heating will be as an auxiliary to the heat pump. Its first power applications will likely be to small electrical relays of the type used on rural telephone lines.

Atomic power and solar energy, then, are more likely to increase the demand for electrical equipment than to make any appreciable dent in the market for stokers and coal in the next decade or two. Indeed, the marketing opportunities in the atomic energy program are tremendous. They will be discussed in detail in a forthcoming issue. It is worth noting here, though, that the Atomic Energy Commission and its contractors, and those who use radioactive isotopes in industrial processing, are healthy customers for everything from overhead cranes to underground conduit. One 10,000-kilowatt nuclear reactor will, according to a recent North American Aviation estimate, require some \$2 million worth of pumps and piping, and over \$500,000 in auxiliary equipment like cold traps and drains.

Electricity, no matter how it is produced, will long be a wide-open market for those alert to its opportunities and needs.

HOW TO MAKE MONEY

from Small Orders

If your small-order customer has no growth potential here are 35 ways to get the cats and dogs out of your orders and build profits.

DONALD R. LONGMAN

Director of Marketing Research, Atlantic Refining Co.

IF YOUR BUSINESS is reasonably typical of manufacturers you will find that 70 to 80 per cent of your total dollar sales are derived from 20 to 25 per cent of your orders. You will find, too, that some 20 to 40 per cent of your orders are so small that they could not possibly yield a profit after due allowance for the actual cost of making the sale and shipping the goods.

Occasional fill-ins and emergency shipments form a fraction of the hopelessly unprofitable orders. Others stem from customers who can afford to buy only in small amounts, who prefer hand-to-mouth buying, who use a small order as a means of getting rid of a salesman, who depend primarily on other sources, and who buy from you only certain specialties or things needed too quickly to be gotten from the regular source. These are a few of the factors behind the bulk of your small orders.

You lose money on small orders simply because many of the costs involved in getting and handling orders are comparatively fixed in character. It may cost as much to make a sales call or to make a truck delivery for a \$10 order as it does for a \$100 order. The gross profit realized on the former is too small to support any consequential selling and servicing expense. Yet these fixed costs in terms of order size are by no means overhead or fixed costs for the company as a whole. Actually, they are variable costs directly associated with selling and servicing customers. They do not react to the size of the order placed by the customer.

A second category of costs is influenced by order size. Orders for many line extensions may call for more work in warehouse order filling or in invoicing than orders for a few lines. Orders for many units may involve greater packing and handling costs or more freight expense. Orders for large dollar amounts may cause higher commission payments or more interest on money

borrowed to carry accounts receivable. These are costs which are variable with order size. Yet they may not be *proportionately* variable. For example, it does not cost twice as much to invoice a two line extension order as a one line extension order, nor twice as much to pack two units for shipment as it does to pack one.

A third category of costs, those wholly related to the number or size of orders, forms an overhead element. These costs are a charge against all sales without reference to the manner or scale in which they are made.

Any experienced accountant who studies your operations can determine the costs of carrying out your selling, billing, delivery, and other activities. If he then classifies these costs into the categories listed above and works with them a little, he can tell you accurately what your fixed costs per order are and approximately what it costs you to handle orders of different sizes.

This is the only way you can find out just what size an order must be (in terms of gross profit, at least) to be profitable. Only when you know this can you look at your tabulation of orders by size and determine just how many of your orders actually result in a loss or how important your small order problem really is. With a little more work he can tell you approximately what your cost percentage is by order size. Use this to determine the total of losses sustained from small orders, the drain upon profits earned on the main part of your business. (You can use it, too, in setting a quantity discount schedule designed to yield a profit on each order size. The discount is likely to be so substantial as to provide a maximum inducement to order in economical amounts; or, conversely, to discourage small orders.)

Detailed data on costs by order size provide the first clue to action. Attention, of course, must be focused on those elements of cost which are variable from the point of view of the company

as a whole but fixed with respect to order size. Such costs lie within managerial control. One of the major items may be travelling and salary costs for outside salesmen. These are likely to be influenced over-all by the number of calls salesmen make; but their cost per call is *independent* of the size of the sale made. Calls can easily result in unprofitable orders if they are made too frequently or if the customer's potential use of the product is so limited as to make small orders inevitable. They can result from inefficient selling, or from solicitation of customers interested in only a few minor items the salesman has to offer.

Truck delivery costs may represent a very large fixed cost element in terms of order size. This raises questions concerning the frequency of delivery or delivery method (should small orders be sent by mail, express, or freight, or by some common carrier?).

Some office procedures are standardized for all orders. Such a procedure may be expensive in proportion to the gross profit received from small orders. This suggests the possibility of automatic credit clearance on orders below a minimum level, avoidance of itemized invoices, and the like.

Ways to diminish or avoid the heavy drain on profits small orders customarily cause are indicated on page 40 to suggest the range of possibilities. There is no need to accept small order losses placidly and endlessly. These losses are heavy. They can be measured. Costs by order size can be determined and the breakeven point found. A formidable attack on the factors responsible for losses can be framed as soon as you direct your attention to those particular elements of cost which are rigid in terms of order size, and which are most responsible for the high cost of small orders. An experienced accountant and a profit-minded sales manager can prepare a definite program together.

35 WAYS TO CUT COSTS on Small Orders

Here's a checkchart of choices that have worked for other companies. How many can you adopt?

A. ACTIONS DESIGNED TO REDUCE HANDLING COSTS

I. Curtail broken package problems

☐ 1. Reduce the package unit to minimize broken package problems.

☐ 2. Employ package units of several different sizes. These in combination may make it possible to fill orders for any quantity at less expense. The simplest parallel is that of our currency with its \$1, \$2, \$5, \$10, and \$20 denominations. With five such package units, orders for unusual quantities may be expected to require the least expense in handling and order-filling.

☐ 3. Develop assortment packages. This may be of particular value for companies distributing such articles as toothbrushes. The several sizes and colors increase the difficulties of order-filling by reducing the number of brushes ordered of each single size or color. The cosmetic and silk-stocking trades have the same problem.

☐ 4. Leave some merchandise unpacked and pack to order. This may avoid costs of packing and subsequent repacking.

II. Reduce costs of packing and shipping

☐ 5. Find cheaper ways of packing and shipping small orders.

☐ 6. Fill small orders in slow periods of the day. Convert these orders into fillers during slack periods. This may apply under some circumstances to delivery or repair service as well. One large company employs for small orders an entirely different routine that involves only 25 per cent of the usual clerical labor.

☐ 7. Employ public warehouse and delivery services. In areas where sales are small, deliveries from the plant may be less economical than shipments in large lots to public warehouses, from which spot deliveries may be made. This may also contribute to an increase in the unit of sale and the sales volume obtained from the area. Companies having a highly seasonal business are often able to lower their delivery costs by hiring independent agencies rather than allowing men and equipment to stand idle in slack periods.

B. ACTIONS TO INCREASE ORDER SIZE

III. Actions respecting customers

☐ 8. Promote club buying for single delivery. If single delivery and billing are made to one of the members, the heavy costs of order-filling, delivery, and credit for small orders are avoided, and the buyers obtain quantity discounts.

☐ 9. Attempt to improve the effectiveness (pulling power) of advertising, or increase the appropriation. It is possible for advertising to be effective enough to bring in orders but not enough to make those orders of profitable size. In such a case, the fault lies either with the quantity or the quality of the advertising.

☐ 10. Increase the promotional efforts directed at the customers themselves. One of the major reasons for small and unprofitable orders lies in the fact that dealers or buyers are not wholly "sold" on the product. If the products are of good quality, any effective additional promotional effort directed at the customers may be exceptionally valuable.

☐ 11. Show retail or wholesale customers the high cost of frequent orders and the loss they suffer from "outs." There is much to be said for a high rate of stock turnover. On the other hand, high stock turnover does not limit storage costs and inventory losses without increasing other costs and bringing other losses. The increased frequency with which orders must be placed, the higher charges for inward freight and express, the higher costs of receiving and storing in proper places, and the costs of handling "back orders" are similar to the higher costs of filling small orders. Furthermore, the increased frequency with which the distributor must report to his customers that orders cannot be filled immediately from stock leads not only to immediate loss of sales but to loss of good will.

There appear to be many cases where it is in the distributor's own interest to buy larger quantities.

☐ 12. Get the distributor to handle the seller's products exclusively. Offers of merchandising assistance, the opportunity for quantity discounts and improved service, and showing mutual interest in larger unit orders may contribute to

induce dealers to handle the seller's products to the exclusion of competitors'.

☐ 13. Establish a customer-aid department. In many cases these have succeeded in giving needed assistance to dealers who recognize the possibility of increasing their efficiency but do not have sufficient business experience to know how. Any success in tactfully handled customer-aid work may be expected to benefit the seller for a long while and make co-operation easier to obtain.

☐ 14. Loosen credit restrictions. Credit losses may increase from a less severe policy; but if the effect of that policy has been to reduce the value of the orders that are filled currently, loosening credit restrictions may create sufficient savings to more than offset such losses.

☐ 15. Guarantee a minimum stock turnover. Where stock turnover is a major factor in the dealer's attitude toward buying, this may be feasible. The salesman makes himself responsible for maintaining an adequate supply for each dealer and, by taking an inventory at each call, is able to determine the volume of sales. Constant adjustment of inventory to sales makes the guarantee of a minimum stock turnover easy to fulfill. At the same time the company obtains valuable sales information plus control over the merchandise carried.

IV. Actions for the salesforce

☐ 16. Place salesmen on a commission basis. In some cases the commission itself has varied with the unit of sale, and with favorable results. Any commission or bonus system usually provides salesmen with an incentive to obtain larger orders.

☐ 17. Increase the amount of the line extension. In cases where the small-order costs are high largely because of factors relating to the product rather than because of customer characteristics, it is the line extension for these products that requires emphasis rather than the amount of the order in total. Here, again, special incentives may be provided for salesmen to place a more active emphasis on selling items which may not have been hard-pushed before.

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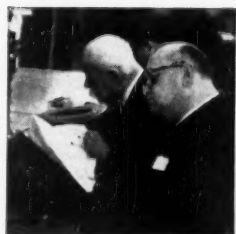
ENTRANCE TO BUSINESS BRANCH, NEWARK N. J., PUBLIC LIBRARY—ANN ZANE PHOTOGRAPH

THE business man of to-day needs a great deal of information to enable him to conduct his affairs with continuing success. To help him in his task, a number of cities have followed Newark's leadership by establishing business libraries during the last 50 years. Here, beside the scholar and the academician, the business man can find all things he wants to know and some he didn't know existed.

Business Libraries Light the Way

MARIAN C. MANLEY

Business Librarian, Newark, N. J., Public Library



ANN ZANE PHOTOGRAPH

*H*AS one of the marked changes in the business world in the last 50 years been an increasing reliance on the application of published data to the solution of current problems? Has an increase in this period in the number and range

of information sources kept pace with the great expansion in business activity? Both questions bring an unqualified "yes," and the proof is found in the growth in the last 50 years of public library departments especially developed to facilitate the use of such resources by management and labor alike.

The growth of a relationship of mutual understanding between the library and business worlds and the resulting progress in economic welfare is a phenomenon of the last half-century. The stimulus for this growth came from the action of John Cotton Dana, a librarian whose vision is responsible for the establishment in Newark, New Jersey, in 1904, of the first public library department planned to concentrate and make easily available data of value to business.

Public libraries in 1904 were generally considered by the world of business to be cloistered

retreats for the scholarly. That their daily use could not only be a saving in dollars and cents but could also result in greatly expanded markets and in the discovery of additional sources of needed materials was unthinkable. But the passage of 50 years has brought a different point of view. The demonstrated value of the institution first established in a modest way in a secondary city has led not only to the establishment of such libraries in cities throughout the country but to an internal interest in their growth.

Information resources have grown in a corresponding degree. When this first library for business use was established, the acquisition of pertinent materials was difficult. The collections noted in a little volume, "The Business Branch," published in 1909 to describe the use of the Newark institution, bear little relation to the data that are assembled to-day. 40 to 50 business and trade periodicals, a like number of industrial and professional directories, some few Government publications, and the first slight beginnings of the countless "services" existing to-day, were concentrated there along with city directories. Their acquisition was the result of unceasing exploration by the enterprising librarian, Sarah B. Ball, under whose guidance the department grew. Even the books devoted to business subjects were so limited in number that the first comprehensive list in the field, published

in 1916, could accurately be titled, "1600 Business Books."

The mere fact of emphasizing the possibilities in the use of published information by business through the establishment of this library to facilitate such service brought about its greater use. A strong belief in the power of advertising by Librarian Dana led to his active interest in the Associated Advertising Clubs of the World, forerunner of the American Association of Advertising Agencies. As Chairman of its Exhibit Committee, he fostered displays and posters emphasizing business use of print. One outcome of the Association's 1913 convention was the visit to Newark Business Library of a Minneapolis member, Mac Martin. The enthusiasm he expressed for such library service on his return to Minneapolis resulted in 1916 in the establishment of the Minneapolis Business and Municipal Branch, the second library opened for the purpose.

The example set by Newark bore fruit throughout the country, with such libraries established in Indianapolis and Providence in short succession and with similar departments in Cleveland, Boston, and Chicago following in due course. They are still developing; Miami and Philadelphia are the latest recruits. They will increase in number as business men realize

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STATUE OF ROGER WILLIAMS, OVERLOOKING PROVIDENCE, R. I.—HOWE PHOTOGRAPH

Fourteen Important Ratios for 24 Wholesale Lines

A unique and useful set of figures, these fourteen ratios make it possible for business men to compare various financial aspects of their own companies with those of others in the same line. The ratios have been compiled annually since 1931 by Roy A. Foulke, vice-president of Dun & Bradstreet, Inc. Similar ratios for retailers were published in the October number of DUN'S REVIEW AND MODERN INDUSTRY; the ratios for manufacturers in 36 industrial lines will appear in December.

Line of Business Number of Concerns	Current Assets to Current Debt Times	Net Profits on Net Sales Per Cent	Net Profits on Tangible Net Worth Per Cent	Net Profits on Net Working Capital Per Cent	Net Sales to Tan- gible Net Worth Times	Net Sales to Net Working Capital Times	Average Collection Period Days	Net Sales to Inven- tory Times	Fixed Assets to Tangible Net Worth Per Cent	Current Debt to Tangible Net Worth Per Cent	Total Debt to Tangible Net Worth Per Cent	Inventory to Net Working Capital Per Cent	Current Debt to Net Work- ing Capital Per Cent	Funded Debts to Net Work- ing Capital Per Cent
FOR 24 WHOLESALE LINES—1953—MEDIAN AND QUARTILES														
Automobile Parts and Accessories (173)	5.07	3.61	12.08	15.42	4.71	6.35	26	6.7	6.3	18.3	35.2	62.3	33.9	6.9
	3.48	1.99	6.35	8.89	3.58	4.53	32	5.6	14.9	31.1	58.5	81.8	52.1	15.2
	2.41	0.87	3.63	4.25	2.53	3.57	41	4.2	28.5	56.9	103.3	100.9	75.5	36.3
Butter, Eggs, and Cheese (27)	4.01	1.67	25.83	42.32	17.48	25.25	11	82.5	5.4	23.2	66.3	26.6	71.0	15.8
	2.25	0.71	8.06	9.79	13.94	18.83	12	34.7	17.4	54.6	86.1	66.8	125.2	61.7
	1.64	0.21	4.77	4.09	11.18	13.55	17	16.8	16.8	90.5	180.3	101.6	202.2	137.7
Cigars, Cigarettes, and Tobacco (77)	4.20	1.20	11.87	21.46	19.74	25.76	13	31.1	7.0	22.8	25.6	51.5	58.2	6.8
	2.41	0.47	7.26	9.69	14.27	19.84	14	23.4	13.6	55.8	79.7	68.8	91.5	27.7
	1.71	0.32	4.50	5.14	8.41	11.93	20	18.7	26.8	96.4	125.9	94.5	132.0	52.1
Confectionery (25)	4.98	3.45	18.86	23.72	12.11	18.68	12	22.2	7.1	20.4	18.6	51.7	45.0	17.7
	3.14	1.22	9.19	12.01	6.81	9.42	23	14.0	13.5	38.3	36.2	65.3	78.8	34.4
	1.68	0.07	0.83	0.92	4.59	6.09	28	8.0	28.8	90.7	167.9	149.6	123.1	69.2
Drugs and Drug Sundries (63)	3.10	2.66	15.34	15.93	7.57	8.35	19	9.9	3.5	37.2	51.1	74.9	49.8	5.4
	2.59	1.41	8.57	9.55	5.92	6.49	28	6.9	12.0	54.0	65.7	94.8	66.3	18.2
	2.08	0.86	5.04	6.34	4.44	4.92	41	5.6	21.5	82.3	130.4	119.3	87.1	27.1
Dry Goods (158)	7.65	2.50	8.09	8.77	5.56	6.56	34	8.3	1.8	11.2	34.9	49.4	28.4	8.6
	3.48	0.69	2.58	2.87	3.85	4.45	44	6.1	5.2	32.1	69.6	69.2	58.0	21.0
	2.40	0.10†	0.70†	0.91†	2.97	3.30	61	4.6	16.0	60.6	107.8	95.1	91.3	32.9
Electrical Parts and Supplies (126)	3.43	2.43	12.39	15.39	6.28	7.60	35	10.3	6.2	32.4	46.6	60.5	59.5	6.5
	2.56	1.59	7.39	11.06	4.45	5.50	41	6.5	12.1	46.8	74.4	78.7	78.1	12.2
	1.93	1.09	3.70	4.72	3.28	3.95	47	4.6	24.8	86.3	127.6	103.2	113.4	23.6

† Loss

14 important ratios

IN 24
WHOLE-
SALE
LINES

Line of Business Number of Concerns	Current Assets to Current Debt Times	Net Profits on Net Sales Per Cent	Net Profits on Tangible Net Worth Per Cent	Net Profits on Net Working Capital Per Cent	Net Sales to Tangible Net Worth Times	Net Sales to Net Working Capital Times	Average Collection Period Days	Net Sales to Inventory Times	Fixed Assets to Tangible Net Worth Per Cent	Current Debt to Tangible Net Worth Per Cent	Total Debt to Tangible Net Worth Per Cent	Inventory to Net Working Capital Per Cent	Current Debt to Inventory Per Cent	Funded Debts to Net Working Capital Per Cent
FOR 24 WHOLESALE LINES—1953—MEDIAN AND QUARTILES														
Fruits and Produce, Fresh (55)	6.11 3.73 2.27	2.92 1.25 0.64	30.54 13.72 6.04	59.86 22.47 9.96	13.00 9.84 7.11	27.90 20.10 12.61	11 15 27	78.3 48.3 16.3	9.8 21.3 32.7	9.1 25.4 42.1	11.7 42.2 51.0	13.2 30.1 58.8	49.6 152.7 246.4	12.4 21.3 66.2
Furnishings, Men's (30)	6.71 4.03 2.47	8.42 2.03 0.39	21.02 4.82 1.02	26.19 6.11 2.09	3.92 3.05 1.66	4.83 3.48 2.72	35 44 71	7.3 5.6 4.2	2.1 4.6 26.5	12.6 33.2 56.1	35.1 55.8 101.8	42.5 61.1 91.1	35.7 54.0 86.5	20.8 31.8 35.8
Gasoline and Lubricating Oil (47)	3.64 2.20 1.61	2.12 1.57 0.73	11.35 7.25 4.29	27.35 19.75 8.73	9.24 4.67 3.47	17.09 13.14 6.17	24 31 39	22.6 17.0 12.2	14.7 33.5 64.3	26.7 35.8 65.9	57.9 76.3 123.8	40.6 68.4 98.3	75.4 139.6 267.5	6.3 28.3 97.1
Groceries (251)	3.82 2.35 1.64	1.70 0.79 0.35	12.98 6.07 2.97	15.61 8.68 3.25	11.37 7.43 5.20	15.85 9.24 6.48	12 16 23	13.0 9.6 7.8	6.3 12.9 26.1	18.1 39.1 75.3	61.4 92.7 137.2	68.1 93.9 130.3	28.1 51.7 73.7	12.7 23.3 43.5
Hardware (166)	4.77 2.86 1.97	3.24 1.89 0.79	10.89 6.54 3.62	12.15 8.38 4.19	4.78 3.28 2.50	5.52 4.11 3.09	26 30 38	6.1 4.3 3.5	6.7 14.3 24.3	16.4 33.7 53.2	43.9 58.5 99.1	69.6 83.7 106.1	26.8 43.9 66.9	9.7 20.5 31.3
Hosiery and Underwear (41)	6.76 3.56 2.34	4.86 2.02 0.97	22.05 9.11 2.77	25.95 10.50 3.05	5.36 4.17 2.35	6.93 4.84 3.99	27 40 62	8.8 6.7 5.3	1.4 3.3 11.7	12.3 31.7 62.8	29.7 39.4 96.6	45.1 72.3 89.7	33.5 51.9 85.2	8.1 14.4 79.6
Household Appliances, Electrical (114)	3.18 2.25 1.67	1.70 1.04 0.59	11.10 7.32 4.68	14.40 9.54 6.28	9.47 6.66 5.16	12.30 9.41 6.03	31 37 45	11.9 8.7 6.5	5.5 9.5 17.4	39.1 71.0 114.1	52.1 95.6 147.2	66.5 90.0 120.8	65.2 95.1 126.5	6.4 15.2 28.7
Jewelry (40)	4.63 2.34 1.97	4.11 2.64 0.04†	18.76 12.68 0.07†	20.07 14.11 0.09†	8.02 4.90 2.40	9.07 5.98 2.62	25 55 94	10.9 5.8 3.8	2.2 4.7 11.3	22.8 62.7 90.4	52.7 104.2 124.7	53.4 83.3 117.2	48.3 78.3 111.3	19.9 36.5 51.6
Lumber (96)	5.28 3.05 2.24	2.30 1.20 0.29	11.73 6.00 2.31	12.96 8.68 3.16	8.03 5.89 3.25	13.78 8.68 4.23	28 35 50	18.9 7.7 4.7	3.3 9.5 24.7	17.5 38.4 66.4	37.8 83.9 95.7	34.5 71.8 92.1	42.6 75.0 166.7	8.5 21.3 38.5
Lumber and Building Material (74)	6.16 4.27 2.70	3.42 1.89 0.62	9.54 7.14 3.24	14.89 9.29 3.86	8.29 3.40 2.39	8.40 5.25 3.46	26 34 46	9.5 6.8 4.9	6.8 15.9 27.2	14.7 21.6 54.7	36.4 71.3 119.2	51.5 73.5 93.7	32.6 51.8 86.5	5.2 29.0 42.9
Meat and Poultry (39)	5.20 2.19 1.63	1.45 0.72 0.16	16.21 8.13 3.72	20.19 14.02 5.99	15.43 11.07 7.35	36.97 16.37 9.49	12 24 33	89.8 32.5 26.6	11.4 25.6 45.2	17.2 42.3 90.9	44.7 58.6 117.9	19.3 51.4 78.2	71.1 135.6 221.5	15.3 32.9 48.4
Paints, Varnishes, and Lacquers (29)	10.86 3.30 2.24	3.51 2.29 0.37	25.45 6.81 1.58	39.87 10.38 3.11	5.39 4.34 3.11	10.71 5.20 2.07	26 32 45	13.3 6.4 4.8	7.4 20.3 33.4	9.6 28.7 46.8	35.4 76.7 89.2	38.3 69.0 96.5	22.7 56.4 100.1	10.4 17.9 28.0
Paper (129)	4.04 2.77 1.98	2.81 1.21 0.49	11.33 7.30 2.59	14.76 9.77 3.79	7.14 5.22 4.08	10.74 6.53 4.82	26 30 40	14.3 8.6 6.5	5.4 14.7 28.4	21.8 40.8 67.9	45.2 65.6 102.9	50.8 75.9 95.6	44.9 69.6 106.9	9.5 20.2 29.2
Plumbing and Heating Supplies (125)	4.85 3.09 1.94	2.68 1.65 0.63	10.17 6.86 2.71	13.48 8.20 3.29	5.00 3.74 2.47	7.52 4.76 3.23	32 39 51	8.2 5.7 4.3	7.3 15.7 28.2	16.9 28.8 60.5	28.3 65.1 100.2	60.5 78.2 98.2	31.0 52.9 97.2	5.0 16.3 34.0
Shoes, Men's, Women's, and Children's (56)	4.84 2.81 2.15	2.40 1.11 0.45	11.31 7.15 1.59	12.58 7.82 1.64	6.67 4.52 3.21	8.13 5.54 3.41	30 48 75	6.7 5.8 4.2	1.9 5.5 9.7	25.5 42.5 74.9	33.3 40.3 63.2	50.4 71.3 101.0	50.7 65.1 111.6	5.0 21.4 24.0
Wines and Liquors (42)	2.45 1.93 1.36	1.74 1.05 0.56	10.91 7.03 3.26	16.60 11.77 6.57	8.71 6.27 4.92	14.93 8.84 5.32	18 35 45	11.2 7.1 4.8	7.7 14.6 42.2	36.2 78.9 149.7	82.0 106.5 127.5	66.5 115.3 212.3	74.5 109.6 142.1	6.4 28.5 54.4
Womenswear, Coats, Suits, and Dresses (36)	5.15 3.47 2.21	4.89 1.24 0.17†	12.41 6.87 0.71†	22.72 6.92 0.82†	7.46 4.19 1.75	9.31 5.10 2.45	30 51 54	13.9 11.1 5.3	2.5 9.7 23.4	16.7 35.0 66.0	19.2 55.8 143.7	22.8 39.2 64.7	77.8 119.1 209.1	8.6 22.3 53.9
WHOLESALE GROCERS—BY SIZE (TANGIBLE NET WORTH) CLASSES—MEDIAN ONLY														
1953 Under \$200,000	2.18	0.81	8.07	9.34	8.02	9.41	17	9.3	9.9	54.1	94.5	101.4	56.5	20.9
\$200,000-\$500,000	2.37	0.96	6.15	9.62	6.29	8.47	15	9.8	14.2	35.5	116.2	84.9	51.2	23.7
Over \$500,000	3.35	0.58	4.63	6.76	7.87	9.57	16	10.6	18.2	33.9	79.8	95.7	46.0	26.4

† Loss

DEFINITIONS OF TERMS ARE ON PAGE 116

*It takes know-how and planning
to turn little-noticed company events
into bonanzas. Here's how to . . .*

. . . make the most of **YOUR MILESTONES**

JAMES K. BLAKE
Marketing Editor

YOUR company has an anniversary every year but you can't make a nickel on it. In terms of product publicity, community relations, employee relations, and dealer relations it is utterly worthless. But every ten years or 25 years you have an opportunity to play it for all it is worth. And companies who have planned and promoted their milestones intelligently find themselves swamped with value received.

Sometimes it is possible to measure it. Ford Motor Company's 50th anniversary celebrations had tremendous impact, escaped few customers or potential buyers. During the first half-year, their public relations research library mailed in response to requests 39,000 items or sets of material, an increase of 287 per cent over the previous year. Special institutional advertising made over 400 million reader impressions. An anniversary film was seen by 550,000 people in four months. Ford people estimate that the advertising space value of the newspaper and magazine articles ran well over \$2.2 million.

In an across-the-board promotion you can't always measure your gains. Not all of them are tangible. You might, for example, have an open house in your plant for employees and the community. You might sponsor outings of various sorts or dinners honoring employees for length of service. You can't tabulate the effect of these

on your community standing but it is obviously good.

You can measure free space in advertising media; you can measure the results from special sales campaigns tied to your anniversary; and you can measure impact on dealers and distributors.

You don't have to have a public relations budget and you don't have to be a large or even medium-size company to get benefits from an anniversary. The president of a small New England machine tool company, a ten-year-old war baby, recently sent a personal letter to most of his customers thanking them for their assistance during his first decade in business, promising constant product improvement and better delivery dates as his young plant expanded. To the few larger buyers who accounted for over half of his volume, he made a personal visit using the same twist on his basic selling story. He had small stickers made up to be pasted on outgoing correspondence. Each, over the firm's trademark, said, "Thank you for our 10th anniversary." His two salesmen made a special point of showing purchasing agents a mimeographed sales curve that emphasized a decade of growth, tying it in with their quality story.

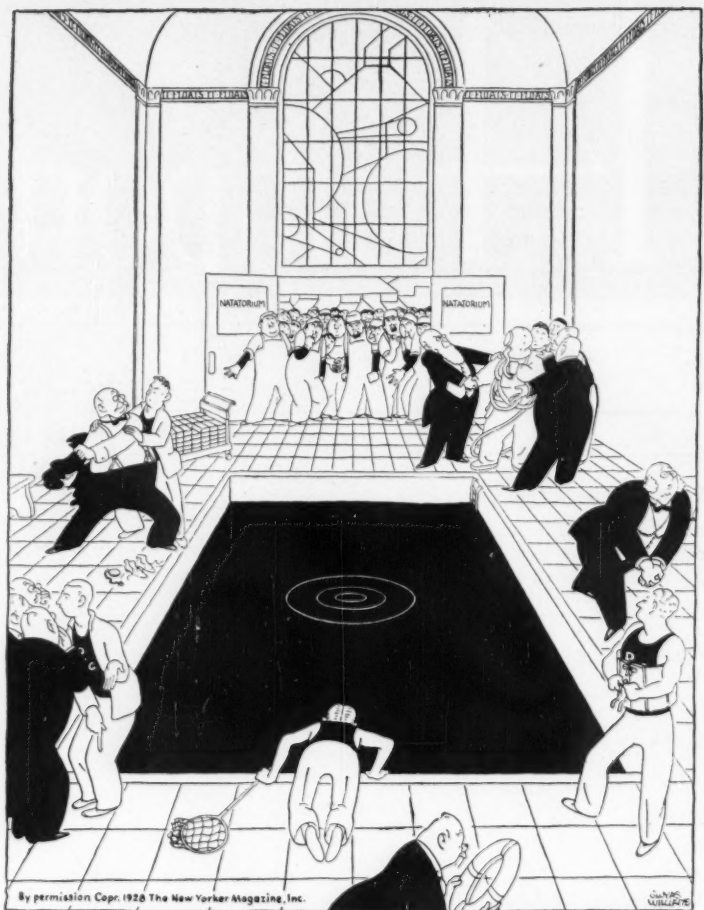
In that example, a small company with no promotion budget to speak of concentrated and

used its resources intelligently. The first and all-important step in planning is to decide *which* public you should reach. Next you determine your budget and then you plan how to reach them. There are only five basic "publics" but there are hundreds of ways to maximize your impact on them. Here are some examples:

The ultimate consumer. If you rely on press releases to newspapers and trade journals, you will need more than a bare mention of your anniversary to get attention. It is your job to make it newsworthy. On the 75th anniversary of Ivory Soap, for example, Procter & Gamble issued to the press a 34-page "background memorandum." This was essentially a chronological account of Ivory and how it grew. What made it unique was the conscious blending in the copy of the growth of the soap with the growth of the American culture, the development of modern advertising techniques and marketing. It gave numerous angles for news and feature editors to hook onto, which a mere recounting of the company's development would never have done.

Here's another point: there is no need to be pompous or deadly serious in your releases. You have survived and you are growing and you don't have to glower or beat your chest about it.

The dealer, retailer, and distributor. You have



INDUSTRIAL CRISES

The day a cake of soap sank at Procter & Gamble's

Old cartoon exhumed by Procter & Gamble to set tone of Ivory's 75th birthday got more press pick-ups than all other graphic material.

two key opportunities here—to build your prestige and to build your sales. Lightolier, Inc., in fact, concentrated its entire 50th anniversary campaign on making a smash impact on its dealers and distributors. Management timed a \$400 thousand plant modernization program to climax during 1954, completely remodeled their showrooms, doubled their advertising budget, brought out an improved catalog, developed a sales training film in color, held four special training clinics for distributors, and put out the largest collection of new lighting designs in the company's history.

Other companies have held dinners for dealers (a top-notch occasion for brass to meet the firing line), constructed special sales campaigns with extra incentives, provided free mailers and point-of-sale displays keyed into the anniversary theme. You have a special opportunity here to honor dealers and distributors who are good producers and to reward loyalty.

Your sales staff. Many companies use annual sales contests with extra incentives. Even with these powerful financial lures, however, contests sometimes tend to evolve into stereotypes and the field men take them for granted, accept them as a normal part of the operation.

An anniversary campaign, however, has an extra lift. Some companies time new designs and new products for introduction early in the year. Others redo their sales tools, develop hard-hitting merchandising aids and special promotions with special ads (like Ford Motor's institutional series, "American Road") in well-selected media.

There is no better time to sell your salesmen on the niche your company has cut out for itself in its industry. Your sales tools, however, can't sell the past. The best presentations keep in the foreground the idea that those well-established roots will be responsible for your vigorous growth in the future.

Your employees and the community. One of your first jobs will be to line up the local papers and radio stations for coverage. Keep them well fed with interviewees and special-feature material. The possibilities here are endless—your president reports on what the community means to the company (with its implied reverse); your oldest employee tells what the town and the plant looked like way back when.

Many companies feature open house, special outings, a commemorative issue of the house organ, special awards and dinners.

But beyond the more-or-less customary features, you will have to use your imagination to dramatize the event.

The Sylvania Division of American Viscose Corporation, for example, is celebrating its 25th anniversary this year. In addition to awarding service pins for a quarter century of service and a special company booklet, each employee got a personal letter from the plant manager. Newspaper editors and civic leaders were sent small individual birthday cakes. One entire issue of the Fredericksburg (Va.) *Free Lance Star* was wrapped in Sylvania cellophane. Finally, a large

Antique ads call attention to your product to-day



Jack: Do you think baby will be quiet long enough to take her picture, mamma?
Mamma: The Kodak will catch her whether she moves or not; it is as "quick as a wink."
Send to the Eastman Company, Rochester, N. Y., for a copy of "Do I want a Camera," (illustrated) free by mail.

Your files and storerooms hold items with high-potential publicity value—old ads, old discontinued products, outdated and (to-day) amusing product applications.

Contrasts effectively show company progress



Then-and-now technique suggests stability, growth, and prestige. Eastman Kodak shows new film processing laboratory near Atlanta, Ga. On left is British (EK) processing plant in the 1890's.

Build the community into your celebration



Eastman Centennial at Rochester included most townspeople (left) at city-wide, week-long functions. Sylvania Division (American Viscose) capitalized on local annual fair, set up large booth exhibit.

booth at the Summer Fredericksburg fair displayed the product line and large blow-ups showed a comparison of products and packaging to-day and during the dark, precellophane ages.

Another company arranged through local merchants and the various business men's clubs for a company day at local stores. The company paid for promotion, gave its employees a half-day off to go shopping.

The Central Soya Company, Inc., packed into one day its anniversary promotion directed to the community, employees, and sales staff. Hiring three special trains and five planes to bring part of the nearly 10,000 people expected, the program featured commemorative speeches, entertainment personalities, and a mammoth barbecue later in a nearby park.

Eastman Kodak Company's celebration of the centennial of the birth of George Eastman is an excellent illustration of an anniversary primarily oriented to the community public. Mr. Eastman's birthdate was July 12. For a month prior the *Rochester Times-Union* published a daily column depicting Mr. Eastman's thoughts and ideas.

On July 8 the formal program began with a plaque unveiled at a luncheon for business and civic leaders with full paper coverage.

On July 11, a number of open houses and exhibits were held in many Rochester institutions, many of which were enriched by Eastman philanthropies. The *Democrat and Chronicle* devoted a special section to Eastman.

On July 12, a day by special proclamation from the mayor termed "George Eastman Day," ceremonies began in Rochester's Eastman Theatre. A new Eastman stamp, the latest in the Famous American series, had its first-day sale



Lightolier concentrated on more dealer aids, more ads, new showrooms (above), new products.

only in Rochester and all guests received a cancelled first-day cover. The house Eastman was born in had been moved to Rochester and was dedicated. A special feature story on George Eastman broke in *Life*, *Fortune*, and *Coronet* magazines and numerous trade magazines covered specific contributions to their industry.

But Eastman Kodak accented most heavily the meaning of their founder to the community and, characteristically, company management encouraged the various community groups to handle many of the reins. Back in the stable, however, the guiding hand of the public relations department was sewing up press, radio, newsreel, and TV contacts with a briefing breakfast, advance speech copies, and photos. A public relations firm interested Rochester firms in purchasing first-day covers of the Eastman stamps for use as mailing pieces (about 80 companies co-



Publicity plus for Eastman Kodak was special stamp honoring founder, issued on anniversary.

operated). Altogether, well over 630,000 first-day covers were sold during the week.

All of these examples illustrate the need for careful advance preparations. In each of them a number of key questions have been asked—and answered. Here are some of them:

What is unique about the company's contributions to the community, to the trade, and to the consumer? Where is there news value or anniversary promotion material—in the product, in its origin, in its applications, in its manufacture? How can we tie these into the product story for immediate, extra sales? Which public can and should we reach and how much can we justify spending?

Answers to these questions will suggest the type of planning schedule required and the assignment of responsibilities and deadlines.

A final word of advice—start early.

GOOD PLANNING

paid off for Ford

Ford's 1953 anniversary spree really began in February 1950. At that time Henry Ford II appointed a small planning committee under Vice-President J. R. Davis to begin preliminary planning. Roughly two months later twelve subcommittees were formed to screen and handle various facets of the celebration. By October 1951, the committee knew where it was going and had defined the projects that had passed subcommittee screening. The following month budget approval was obtained from the Executive Committee.

In the Spring of 1952, the planning subcommittees were dissolved and two new committees took their place. One recommended detailed plans for participation of employees and communities outside Detroit where Ford had branch operations. Another committee was set up to co-ordinate the various activities that were planned.

All projects were organized and budgeted un-

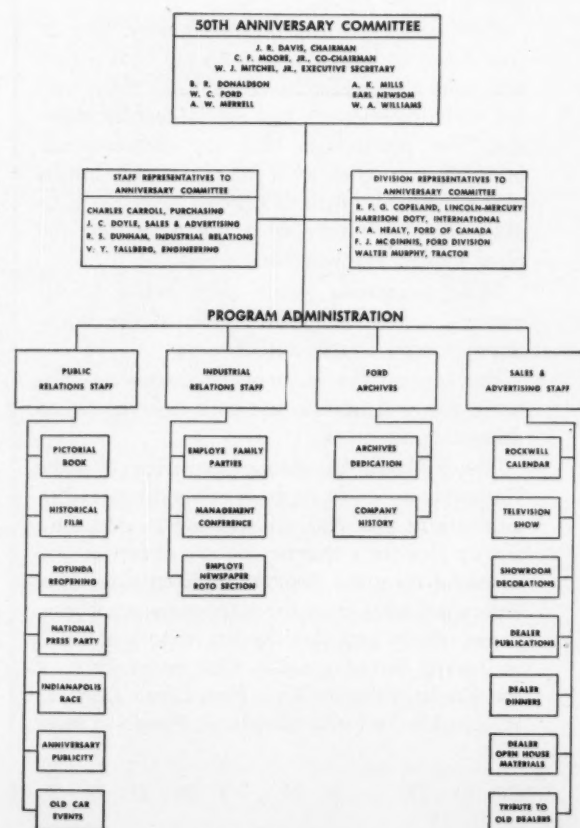
der Sales and Advertising, Public Relations, Industrial Relations, or the Ford Archives. One individual was responsible for each project.

During the Summer of 1952 additional activities were scheduled—a management conference, a national press party, and dealer anniversary dinners. These were built into a revised budget.

The chart to the right shows the great number of projects planned and co-ordinated.

As important to the final program as planning and co-ordination was the timing factor. Ford used the January-April period as warm-up months. During this period, dealers, employees, and company management were briefed on the program and the public was primed by ads.

The build-up period began in mid-April, lasted until June when anniversary dinners, the TV show, preview receptions at the Ford Rotunda, and other activities brought the program to a climax.



Famous Victor Adding Machine with Exclusive Select-O-Matic

Revolutionary new Select-O-Matic Feature gives you
totals and sub-totals automatically



This magic little
key speeds
up your
work

Quiet as a mouse—fast as lightning. These famous Victors add, subtract, multiply, divide and even calculate.

No other adding machine offers you the advantages of Victor's Select-O-Matic. It's exclusive—the greatest work and time saver feature ever put on an adding machine.

It gives you the answers—(totals and sub-totals)—automatically—faster than ever before. Lets you use the

regular dual total key, too. Even works both methods interchangeably!

Now is the time to look into Victor and find out all that Victor offers you. Try the 10-key Custom model above . . . or the new full keyboard custom model.

Free tryout with a Victor? Look under "V" for Victor in Adding Machine section of your classified phone book. Or write.

Victor Adding Machine Co., Chicago 18, Illinois



how can I get more from each man-hour?

Alert executives everywhere are conserving company time with P-A-X Business Telephone Systems. With P-A-X, *your* employees can reach each other with fast *inside* telephone service—get more work done in the man-hours you pay for!



FOR EXECUTIVE CONVENIENCE

A special "Executive Direct-Line" unit, which gives two-way loudspeaker conversation at the flick of a switch, can be supplied with any P-A-X. Illustrated circular sent on request.

Your people can save walking and waiting time... cut errors, fatigue and correspondence... at the turn of a P-A-X dial. Across the nation, in business, industrial and service organizations of every type and size, this swift inside telephone service has paid for itself in the time it saves alone.

It will pay you well to find out how P-A-X can save man-hours and money for your organization. Complete facts and on-the-job case studies of P-A-X performance are yours on request. Call or write Automatic Electric Sales Corporation, (HAYmarket 1-4300), 1033 West Van Buren Street, Chicago 7, Illinois.



Write for this useful information today! P-A-X users have helped us prepare illustrated case studies describing P-A-X in daily use for: a financial institution; a manufacturing plant; a processing plant; a school; a railroad; an oil company. Specify the case studies which interest you.

CHECKCHART

Continued from page 40

☐ 18. Avoid order-taker salesmen.

To increase the unit order, it is essential to have salesmen capable of dealing with customers as *salesmen* rather than as routine order takers.

C. ACTIONS TO REDUCE SELLING COSTS

☐ 19. Reduce missionary work among customers of the type found to order in unprofitable quantities.

Reroute missionary men on the basis of the results obtained by classes of customers.

☐ 20. Use subsalesmen. Transfer better men to better prospects and employ less-well-paid subsalesmen for small accounts.

☐ 21. Solicit less frequently. It is not essential that salesmen canvass all of their customers in a given area with equal frequency.

☐ 22. Give small orders to jobbers. A manufacturer of leather belting turned over 80 per cent of customers to distributors with success.

☐ 23. Sell in certain areas to certain groups of customers through brokers or agents. The effect of this is to engage in distribution co-operatively with other producers, each contributing part to the cost of the agent's work.

☐ 24. Arrange for mail solicitation. This need not be employed exclusively but may be effective during off-seasons. One company reports that 17,000 small accounts were made profitable by this method.

D. ACTIONS RESPECTING NET PRICES CHARGED ON SMALL ORDERS

☐ 25. Employ quantity discounts. This has been one of the oldest and most common incentives to customers to buy in quantity.

☐ 26. Charge postage or express for orders not large enough to be profitable if shipped prepaid.

☐ 27. Charge a service fee for credit and delivery on orders below a minimum size.

☐ 28. Make an extra charge for drop shipments.

☐ 29. Reduce the product trade discount. The effect of this is to increase the price received by the company on products that are commonly bought in quantities too small for efficient handling. It is an increase in price to dealers without



LORD ELGIN HENSLEE—14 K gold, 21 jewels.
LADY ELGIN LILY OF THE VALLEY—14K white gold with 2 diamonds, 21 jewels.

How auto makers get more mileage from Service Awards

By awarding distinguished Lord and Lady Elgin Watches, America's top auto producers go farther in encouraging long and loyal service.

Follow the leaders of industry by using the prestige of America's finest timepiece in your incentive plan. Mail the coupon today for all the facts.

ELGIN WATCHES

Service Award Department, Box 18
Elgin National Watch Company
Elgin, Illinois

Gentlemen:
Kindly send me full information about
Service Award Plans.

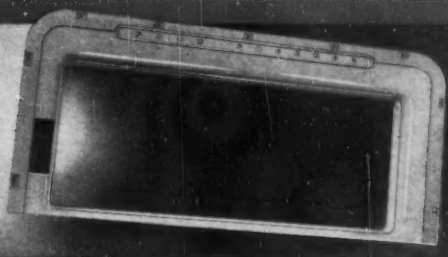
Name (Please print name and address)

Address

City Zone State



Large door panel for freezer, vacuum formed from a sheet of TGD-5001. Material's high impact strength is important to this job.



Refrigerator freezer door frame shows fine detail and excellent finish possible with injection molding compound TMD-5151.



This one-piece display stand is vacuum-formed from a sheet of TGD-5001. Note the deep-draw and undercuts that have been achieved in one operation.

New High-Gloss, Improved Impact Styrenes

THAT MAKE HANDSOME, HARD-WORKING PRODUCTS

A major advance in product designing is made possible by the new *high-strength* BAKELITE Impact Styrene Plastics that combine toughness with high gloss, attractive color, and production economy. One injection molding compound has eight* times the shock resistance of general-purpose styrene plastics. Another compound, developed expressly for extrusion, can be extruded into high gloss sheet for subsequent low-cost vacuum forming.

These materials are the result of an extensive research and development program aimed at producing impact styrenes superior to any hitherto available. BAKELITE TMD-5151, for injection molding, permits execution of highly-detailed, intricate designs, such

as refrigerator freezer door frames, requiring toughness and rich appearance. BAKELITE TGD-5001 extrusion compound produces sheets that can be post-formed with deep draws and undercuts.

Choice of compound depends on which fabrication method is more economical for your particular manufacturing requirements. Both types are excellent for refrigerator panels, signs, machine housings, TV masks, toys, and housewares. Outstanding blend-to-blend uniformity assures color matching on orders received months apart.

New modern production facilities assure continuity of supply on a commercial scale. Write Dept. ZF-15.

*ASTM average Izod test values using notched $\frac{1}{8}$ in. bar at 74 deg. F.

BAKELITE

TRADE-MARK

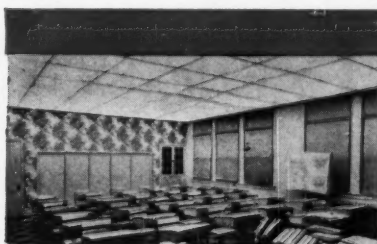
IMPACT STYRENE PLASTICS

TRADE MARK

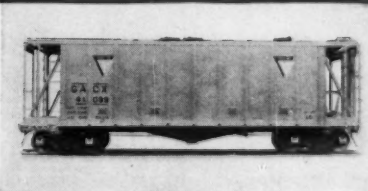
BAKELITE COMPANY
A Division of
Union Carbide and Carbon Corporation

30 East 42nd Street, New York 17, N. Y.

In Canada: Bakelite Company
Division of Union Carbide Canada Limited
Belleville, Ontario



WHOLE CEILINGS constructed from corrugated BAKELITE Rigid Vinyl Sheet conceal lighting fixtures, diffuse light, soften glare and shadows. Easily removed for lamp replacement. Made by Benjamin Electric Mfg. Co., Des Plaines, Illinois.



OUTLASTING ORDINARY PAINTS 5 TO 1, coatings based on BAKELITE Vinyl Resins resist acids, alkalis, chemicals, corrosion, weather. General American Transportation Corp. car with coating by The Glidden Co., Cleveland 2, Ohio.



SAFE, PERMANENT STORAGE for 100 45-rpm records is provided by the "Kadette-45", molded in two pieces from BAKELITE Phenolic Plastic, in rich black or walnut color. Made by Mid-Continent Plastic Products, Kansas City 5, Missouri.



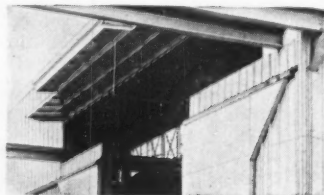
INTERNATIONAL SERVICE IS "Integrated Service"

COMPLETELY INTEGRATED SERVICE — from preliminary planning to final delivery on the job — is the kind of "profits insurance" you can bank on from International. It's the *proved* structural steel service which won the contract for the big Ball Brothers Company rail freight project shown above. And further proof of its soundness is the similar dock just completed — built for handling truck freight — with all steel for construction again supplied by International.

The continued success of this **INTERNATIONAL SERVICE** has been built entirely on teamwork. Starting from scratch, or at any

stage of construction, International's engineers stand ready to assist you as needed. Standard warehouse steel stocks cover every requirement, and every requirement is treated as a "rush order." Special fabrications are an International specialty, with toughest problems taken right in stride.

The same International team-work is ready to go to work for you, any time you say the word — on any type or size of project. Meanwhile, you'll find it worth while to use the above coupon!



17½-ton crane door for steel warehouse service—completely engineered and fabricated by International. Industrial doors and aviation doors, from the smallest to the world's largest, are built by International.



2009 EDGAR STREET
EVANSVILLE 7, INDIANA



INTERNATIONAL STEEL COMPANY

• **INTERNATIONAL STEEL COMPANY**
• 2009 EDGAR STREET, EVANSVILLE 7, INDIANA

Send me without obligation my personal copy of

- ☐ Steel Fabrication Services Guide
- ☐ Doors for Industry and Aviation

NAME AND POSITION _____

FIRM _____

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MAIL THIS COUPON FOR
NEW GUIDES TO PROVED
CONSTRUCTION ECONOMIES

Steel framework for new
railroad loading dock built for
BALL BROTHERS COMPANY,
Muncie, Indiana

CARL VESTAL COMPANY,
Indianapolis, Indiana: Erectors

LAWRENCE J. SNYDER COMPANY,
Muncie, Indiana: Contractors

INTERNATIONAL STEEL COMPANY:
All structural steel, galvanized
beaded sheets on roof and sides.

an equal increase in the suggested resale price to customers.

☐ 30. *Raise or lower the (suggested) final price to consumers.*

E. OTHER ACTIONS

☐ 31. *Change the channels of distribution.* In some cases the proportion of unprofitable small-order customers to the total customers of one type is so great that the problem of small-order losses can hardly be divorced from the larger problem of the channels of distribution to use. When other types of customers are available but difficult to serve because of sales to the current profitable customers, a complete change may be indicated.

☐ 32. *Diversify the line.* Diversification is an important means of increasing the number of line extensions and the value of the total order. It involves a more radical decision affecting all phases of the business, but it may be effective. When idle capacity exists either in the plant or in the distribution facilities, diversification may solve several problems together. Even when neither production capacity nor experience shows it to be wise

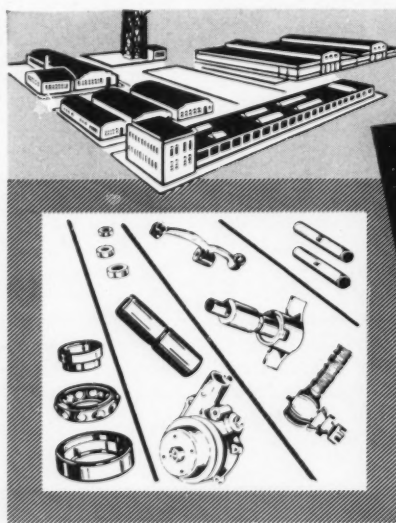
to enlarge the line of articles manufactured, it may be possible and desirable to act as selling agent for other articles, similarly distributed.

If no procedures suggested above provide any help, consider these drastic steps for the eradication of small-order losses:

☐ 33. *Establish a minimum size of order that will be accepted.* It may be necessary to refuse to fill orders too small to be profitable. Such a refusal may affect the important and profitable customers who occasionally place small orders as well as the unprofitable customers. It may create a degree of ill will that will nullify most of the advantages gained. But the situation in some companies may justify it, particularly if the minimum order could easily be obtained by almost all customers under ordinary circumstances.

☐ 34. *Refuse to sell broken lots.* This is another form of minimum order size regulation affecting the individual products asked for rather than the order as a whole.

☐ 35. *Reduce and finally stop soliciting the trade of customers providing small orders.*



EXPERIENCED EQUIPPED... ABLE...



Just off the press . . . informative, illustrated brochure tells the interesting Airtex story. Write or wire today for your FREE copy to E. V. Frankel, President

to manufacture precision parts
or complete products for you

Continually producing a variety of both large and small parts, products and sub-assemblies, a part of this firm's huge facilities are now available to you for contract manufacturing. Nationally recognized as a firm of important manufacturing achievement in the automotive field and in ordnance work, we can assure economy, speed and accuracy regardless of the complexity or the exactness of your specifications.

AIRTEX PRODUCTS INC., BOX 7 • FAIRFIELD, ILLINOIS

Posture chairs not
used correctly can
INCREASE COSTS
because employees
become fatigued
like this...



DO/MORE

posture **4** program

POSTURE EXPLANATION
PROPER CHAIR
ANATOMIC FITTING
PERIODIC FOLLOW-UP



—the way to get good sitting posture,
cut costs and receive

100% DIVIDENDS
from posture chairs

chairs by
DO/MORE
...posture
with a
promise!

SEND, TODAY!

DOMORE CHAIR COMPANY, INC.—Dept. 1139
Elkhart, Indiana

- ☐ Please send complete information on how the Do/More
"Posture 4 Program" cuts costs.
☐ Please arrange free trial demonstration.

COMPANY _____

TITLE _____

ADDRESS _____

CITY, ZONE, STATE _____



They can't keep up with her

They can't even keep close—

In one minute the girl at the Recordak Microfilmer will make a photographically accurate and complete record of 200 letter-size documents.

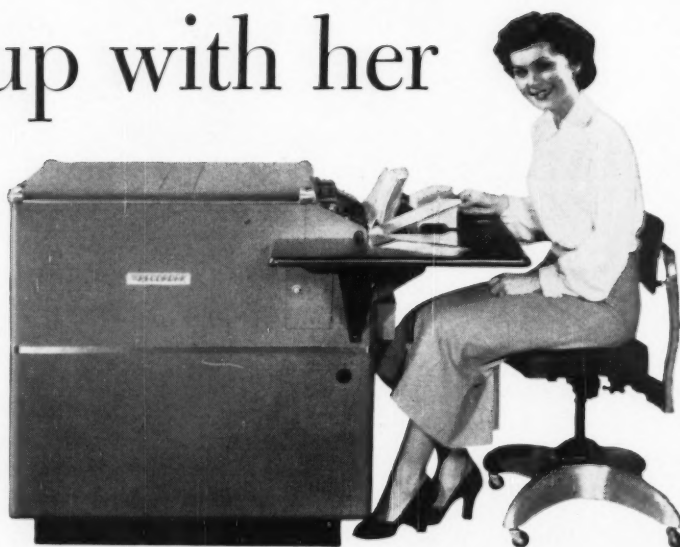
You could add two hundred clerks to the staff shown above . . . quadruple their transcription speed, and it would still be no contest.

This will give you an idea of how slow and costly manual transcription really is—with pen, typewriter, bookkeeping machine, etc. And why over 100 different types of business, thousands of concerns, are now using Recordak Microfilming to simplify their daily record-keeping routines.

In some of these routines, only a few words or figures on a record were being transcribed manually. Still Recordak Microfilming saved money—lots. For this truly amazing process gives you pictures for a fraction of a cent apiece. And, remember, they're error-free.

It will certainly pay you to double-check with a Recordak Systems Man soon. He has hundreds of case histories at his finger tips. And the chances are he can point out how costs have been cut on jobs similar to yours.

"Recordak" is a trade-mark



Write today for complete story—including facts on the line of Recordak Microfilmers designed for all requirements, all budgets. Recordak Corporation (Subsidiary of Eastman Kodak Company), 444 Madison Avenue, New York 22, N. Y.



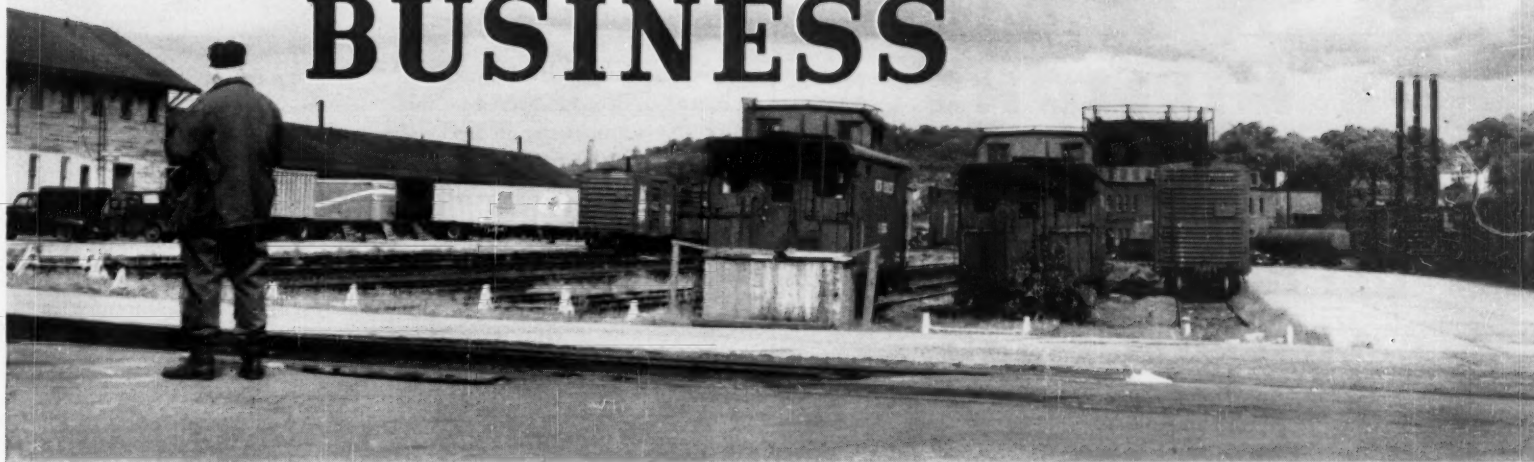
RECORDAK

(Subsidiary of Eastman Kodak Company)

**originator of modern microfilming—
and its application to business routines**

D U N ' S R E V I E W and

The Trend of BUSINESS



DANBURY, CONN., RAILYARDS—HOWE PHOTOGRAPH

- Retail trade at new peak
- Collections improve again
- Unemployment still dipping
- Failures decline seasonally
- New orders top expectations
- Construction to keep booming

Neither Stable Nor Stagnant

Statistics, like dogs, have their day. In recent months, one particular figure—the Federal Reserve Board's index of industrial production—has done most to justify the current practise of using the term "stability" with the frequency of a fraternal lodge password. However, whether it is described as stability or stagnation—depending on one's politics more than one's economics—the sidewise, crablike motion of the American economy seemed to be giving way to smooth upward movement this month. The perplexity which faced management during the past year (whether business would continue to slip or remain stable) has decidedly been replaced by the consideration of how soon the recovery will be felt in the still sluggish lines, such as machine tools and railroad construction. The possibility of a recurring decline has apparently joined the list of unmentionables in the current American vocabulary.

Among the many sources of confidence this month were the considerable rise in new orders, the record level of consumer expenditures and new construction, rising defense orders, the trimness of inventories, and the quickened output in virtually all industries. But perhaps the most potent source of reassurance was the collective sense of confidence among business men, which, like a sense of pride, sustains itself.

More New Orders

Those dynamically interlinked variables, new orders and inventories, continued to move in opposite directions during September and the first half of October, according to preliminary reports from business men throughout the na-

tion. Unlike the rise in manufacturers' new orders in August, which was outpaced by the rise in factory output, the gain in new orders in September and October topped that in production.

This particular combination of rising orders and still sliding inventories may well be one of the key factors in the present recovery. For when stocks are falling so as to appear no longer burdensome business men are encouraged to place new orders. And, in turn, when one's own new orders are rising, previous concern

with the level of inventories vanishes like worry on a Spring morning.

Inventories continued to slip slightly in September and early October, but the decline was much less than that in recent months. Business men have managed to reduce their swollen stocks from an all-time peak of \$82.0 billion in September 1953 to the level of \$77.2 billion in early September 1954, without upsetting unduly the highly valued stabilization of the American economy. Since inventories are probably now at the lowest level in more than a year-and-a-half and since manufacturers' sales are rising steadily, it seems likely that inventories will be increased—very slightly, of course—in the months to come. The turn in inventories—from decline to accumulation—which began among wholesalers and retailers as early as August, usually foreshadows a shift in general business.

In relation to total business sales, inventories are slightly smaller than they were in August 1953 when business men began the strenuous efforts to pare their stocks. Of course, the stock-trimming at that time was given added impetus by the decline in defense orders, which in contrast are now rising.

Output Up Again

Reflecting the recent rises in both new orders and business confidence, many industries increased their output in September and early October. While the rises in production were generally only on a par with, or slightly less than, seasonal expectations, they were in vivid contrast with the contraseasonal dips last Fall.

The highly sensitive steel industry, which is a metallic mirror of most of the economy since steel goes into so many products, continued to

Weekly Business Signposts

SELECTED BUSINESS INDICATORS	LATEST WEEK*	PREVIOUS WEEK	YEAR AGO
Steel Ingot Production Ten Thousand Tons	177	177	213
Bituminous Coal Mined Hundred Thousand Tons	88	83	93
Automobile Production Thousand Cars and Trucks	58	62	143
Electric Power Output Ten Million KW Hours	902	912	831
Freight Carloadings Thousand Cars	746	721	804
Department Store Sales Index Number (1947-1949=100)	123	119	113
Wholesale Prices Index Number = (1947-1949=100)	109	110	110
Bank Clearings Hundred Million Dollars	875	1008	869
Money in Circulation Hundred Million Dollars	301	302	303
Business Failures Number of Failures	229	152	185

*Steel and bank clearings data are for the fourth week of October; all others are for the third week except money in circulation which are for the second week.

Sources: Amer. Iron & Steel Inst.; Bureau of Mines; Automotive News; Edison Elec. Inst.; Assn. of Amer. Railroads; Bureau of Labor Statistics; DUN & BRADSTREET, INC.

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The Trend of BUSINESS

recover last month and reached the highest output level since last February. Encouraged by the better-than-seasonal rise in steel orders, steel industry spokesmen were already looking forward to a larger output in 1955.

Since many of the orders for steel stressed almost immediate delivery, steel consumers had evidently let their inventories tumble more than they had previously planned. The most joyful news was the high demand for steel despite the relatively small call from the automobile industry and the rise in warehouse business.

Automobile production in October was retarded considerably as virtually all lines were stopped for model change-overs. Since the carry-over in early October of last year's models was only about one-half as large as when new models were introduced in the Fall of 1953, many makers were rushing to enter the new, revitalized market.

More Factory Jobs

Factory jobs became more numer-

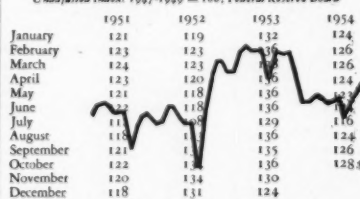
ous in October, according to preliminary reports from manufacturers in 39 states. The most marked rises were among producers of durables who were considerably constrained by the recent recession. However, because of the addition of many semiautomatic machines in automobile and other durable-goods factories, the number of recalled workers would most likely not be commensurate with the gains in output.

Continuing the rise of the prior month, when a year-long decline was halted and reversed, factory jobs increased about 1 per cent in September while factory output rose 2 per cent. Although this rise in factory payrolls was somewhat smaller than is usual at this time of the year, it was in marked contrast with the decline which occurred a year ago. For the first time in fourteen months, the number of workers in the ordnance industry did not decline in September, probably as a result of new defense orders.

The number of people out of work declined again in October, according to preliminary reports

Industrial Production

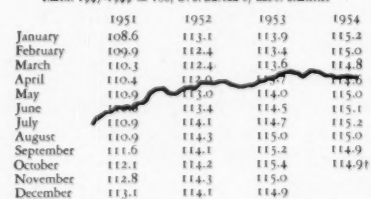
Unadjusted Index: 1947-1949 = 100; Federal Reserve Board



† Approximation; figure from quoted source not available.

Consumer Price Index

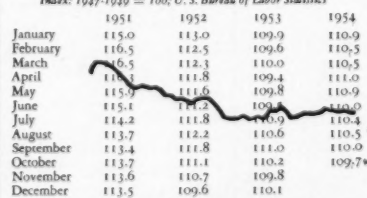
Index: 1947-1949 = 100; U. S. Bureau of Labor Statistics



† Approximation; figure from quoted source not available.

Wholesale Commodity Prices

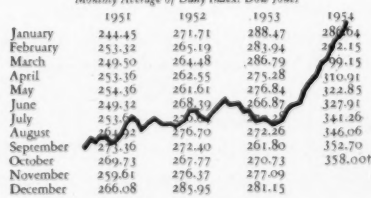
Index: 1947-1949 = 100; U. S. Bureau of Labor Statistics



† Approximation; figure from quoted source not available.

Industrial Stock Prices

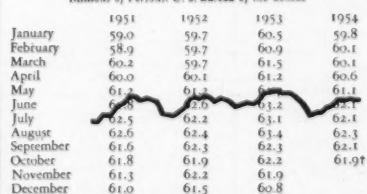
Monthly Average of Daily Index: Dow Jones



Based on closing prices of 30 industrial stocks.

Employment

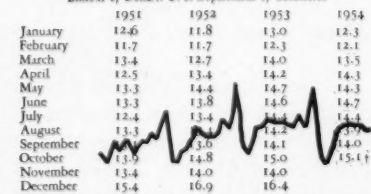
Millions of Persons: U. S. Bureau of the Census



Includes all civilian workers.

Retail Sales

Billions of Dollars: U. S. Department of Commerce



† Approximation; figure from quoted source not available.

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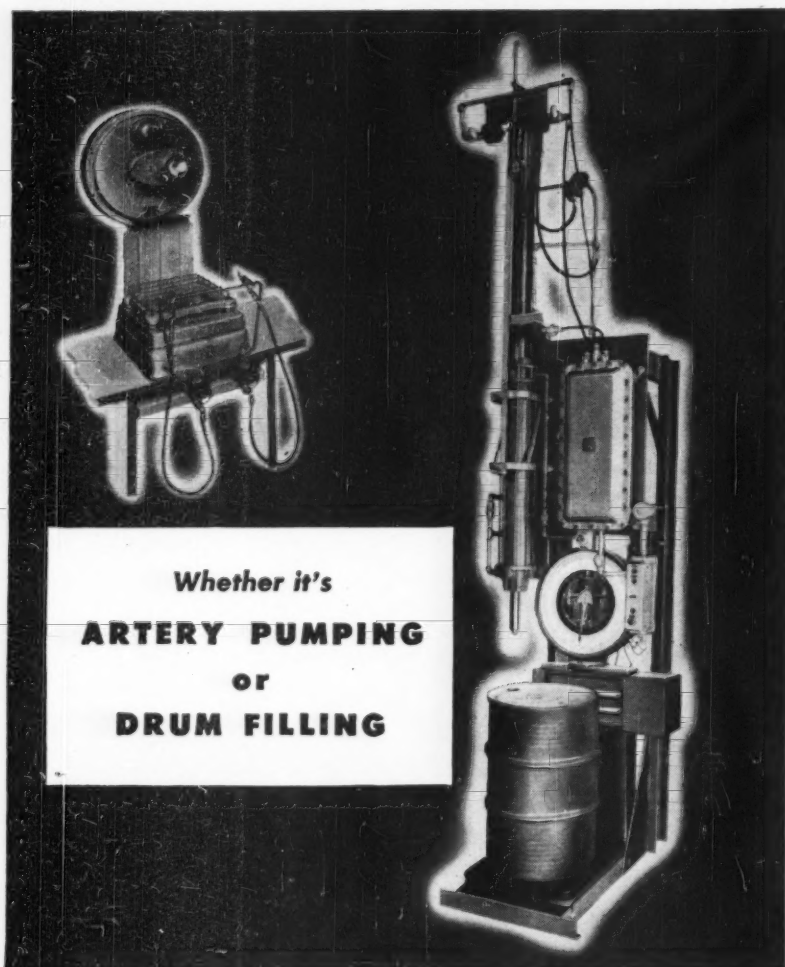


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from business men throughout the nation. This was the fourth consecutive dip in joblessness. September unemployment at 3.1 million was down about 600,000 from the post-Korean peak reached last March. Although joblessness was expected to rise mildly during the Winter, it was rather unlikely that the level of 4.7 million reached during the recession of 1949 would again be touched.

Of the nation's 149 major labor market areas, 51 reported substantial labor surpluses in September. While this was a slight improvement over the 53 in the previous bimonthly study by the U. S. Department of Labor, it was in sorry contrast to the eighteen reported a year ago. The concentration of severely distressed areas continued to be in the East and Midwest. Last month the Office of Defense Mobilization ruled that an extra bonus of up to 25 per cent (above the amount of rapid amortization) would be allowed as a tax write-off on new facilities of defense and defense-supporting industries in distressed areas.

New Peak in Shopping

For the fourth month this year, retail stores sold slightly more in October than they did a year ago, thus touching a new peak for the

BANK CLEARINGS (Thousands of Dollars)

	1954	1953	% Change
Total 24 Cities	36,630,708	36,068,106	+1.6
New York City	40,709,987	39,002,972	+4.4
Total 25 Cities	77,340,695	75,071,078	+3.0

NEW BUSINESS INCORPORATIONS

Geographical Divisions:	September 1954	September 1953	Nine Months 1954	Nine Months 1953
New England	529	483	5,334	5,236
Middle Atlantic	2,746	2,246	27,151	24,994
East North Central	1,513	1,336	14,489	13,133
West North Central	427	368	4,247	3,866
South Atlantic	1,510	1,085	12,697	11,707
East South Central	273	240	2,487	2,291
West South Central	616	483	5,220	4,872
Mountain	507	329	4,132	3,177
Pacific Coast	1,135	863	9,839	8,818
United States	9,256	7,433	85,596	78,094

DAILY WHOLESALE PRICE INDEX

Prepared on the basis of daily spot closing prices of 30 primary commodities (1930-1932=100).

Week Ending	Mon.	Tues.	Wed.	Thurs.	Fri.
Oct. 30	276.87	277.49	277.23	277.16	
Oct. 23	276.46	276.08	276.17	277.51	277.12
Oct. 16	276.83	276.31	276.97	277.78	277.48
Oct. 9	275.44	275.76	276.94	276.58	277.15
Oct. 2	274.51	274.73	274.41	274.03	274.39

WHOLESALE FOOD PRICE INDEX

Not a cost-of-living index, it is the sum total of the wholesale prices per pound of 31 foods in general use.

Latest Weeks	Year Ago	1954
Oct. 26 \$6.71	Oct. 27 \$6.49	High May 25 \$7.46
Oct. 19 6.59	Oct. 20 6.54	Low Oct. 19 6.59
Oct. 12 6.64	Oct. 13 6.57	1953
Oct. 5 6.69	Oct. 6 6.57	High Dec. 29 \$6.81
Sept. 28 6.71	Sept. 29 6.66	Low Feb. 3 6.13

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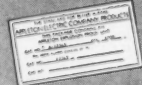
... ALL

IN ONE OPERATION

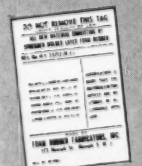
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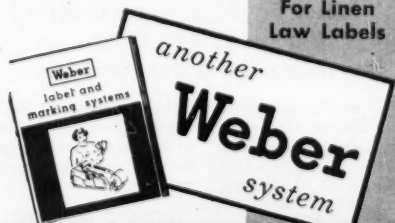
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The Trend of BUSINESS

month. Reflecting the successful promotions of many merchants, retail trade in September had come within a fraction of matching the record level of a year before. Nine of the eleven retail lines on which the U. S. Department of Commerce reports, were above 1953.

While business men still encountered more delays in collecting their accounts than they had a year ago, there was a discernible improvement in October. Reports from manufacturers, wholesalers, and retailers in 140 cities in 46 states noted that they had to devote more expense to collections in September than they had a year earlier.

The most buoyant section of the economy, the construction industry, continued to be as reassuring as a life-preserver. During the period from January 1 up to the beginning of October, construction topped the year-ago total by 4 per cent, a new all-time record volume.

Building permits, which are secured in advance of actual building, rose contraseasonally to a new all-time high (for the month) in September and were up 17 per cent from a year ago. A recent survey by The Associated General Contractors of America among its members (who perform about 80

FAILURES BY DIVISIONS OF INDUSTRY

(Current liabilities in millions of dollars)	Number 9 Months 1954	Number 9 Months 1953	Liabilities 9 Months 1954	Liabilities 9 Months 1953
MINING, MANUFACTURING...	1,710	1,301	138.1	106.6
Mining—Coal, Oil, Misc...	36	32	7.8	2.4
Food and Kindred Products...	131	123	13.9	15.2
Textile Products, Apparel...	408	316	21.9	21.7
Lumber, Lumber Products...	247	199	12.0	10.7
Paper, Printing, Publishing...	98	87	8.2	10.0
Chemicals, Allied Products...	61	45	4.8	5.3
Leather, Leather Products...	78	76	5.5	6.1
Stone, Clay, Glass Products...	42	25	1.2	1.1
Iron, Steel, and Products...	87	43	9.0	7.4
Machinery...	225	112	34.7	14.5
Transportation Equipment...	40	37	4.7	3.7
Miscellaneous...	257	206	14.6	8.4
WHOLESALE TRADE...	857	676	41.6	38.9
Food and Farm Products...	219	204	10.4	13.3
Apparel...	37	25	1.0	0.8
Dry Goods...	49	27	2.2	1.2
Lumber, Bldg. Mats, Hdwre...	84	69	3.9	7.2
Chemicals and Drugs...	32	24	0.6	1.0
Motor Vehicles, Equipment...	44	24	1.6	0.8
Miscellaneous...	392	303	21.7	14.6
RETAIL TRADE...	4,174	3,206	114.6	86.8
Food and Liquor...	740	643	10.6	11.3
General Merchandise...	141	110	6.1	3.4
Apparel and Accessories...	629	467	12.2	12.6
Furniture, Furnishings...	731	502	37.1	19.4
Lumber, Bldg. Mats, Hdwre...	231	159	6.7	5.5
Automotive Group...	459	375	17.6	12.6
Eating, Drinking Places...	737	580	14.2	13.1
Drug Stores...	119	83	2.6	2.9
Miscellaneous...	387	287	7.5	6.0
CONSTRUCTION...	956	749	39.3	30.2
General Bldg. Contractors...	337	272	20.6	13.9
Building Subcontractors...	579	435	16.6	11.9
Other Contractors...	40	42	2.1	4.4
COMMERCIAL SERVICE...	668	462	24.8	14.1

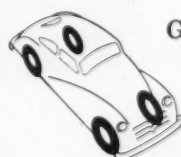
TOTAL UNITED STATES... 8,365 6,394 358.4 276.5
Liabilities are rounded to the nearest million; they do not necessarily add to totals.

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The Trend of BUSINESS

per cent of all contract construction) indicated that the present record volume would continue for, at least, six months.

Failures Down Seasonally

Business failures in September declined seasonally to the lowest level of the year. However, casualties were the heaviest for any September since pre-war 1940.

Although the number of failures fell in September, their liabilities rose to the largest volume in three months. This rise resulted entirely from the four businesses succumbing with liabilities above \$1 million as against none in August.

All industry and trade groups had lighter mortality in September except wholesaling which edged up to a six-month high. The toll among manufacturers fell to the lowest level in a year and among retailers to the lowest in six months. In manufacturing, the only notable increase took place among machinery makers.

Six of the nation's nine geographic regions reported fewer failures in September than in the previous month. Notable declines brought the Middle Atlantic toll down to a twelve-month low.

THE FAILURE RECORD

	Sept. 1954	Aug. 1954	Sept. P.C. 1953 Chg.†
DUN'S FAILURE INDEX*			
Unadjusted.....	37.5	40.1	30.7 +22
Adjusted, seasonally	44.1	44.1	36.1 +22
NUMBER OF FAILURES	819	912	686 +19
NUMBER BY SIZE OF DEBT			
Under \$5,000.....	121	138	90 +34
\$5,000-\$25,000.....	400	472	321 +25
\$25,000-\$100,000.....	231	232	199 +16
\$100,000 and over.....	67	70	76 -12
NUMBER BY INDUSTRY GROUPS			
Manufacturing.....	153	187	145 +6
Wholesale Trade.....	113	94	85 +33
Retail Trade.....	406	451	336 +21
Construction.....	88	100	89 -1
Commercial Service	59	80	31 +90

(LIABILITIES in thousands)
CURRENT..... \$36,381 \$32,582 \$33,817 +8
TOTAL..... 37,757 32,712 34,050 +11
*Apparent annual failures per 10,000 listed enterprises, formerly called DUN'S INSOLVENCY INDEX.
†Per cent change, Sept. 1954 from Sept. 1953.

BUSINESS FAILURES include those businesses that ceased operations following assignment or bankruptcy; ceased with loss to creditors after such actions as execution, foreclosure, or attachment; voluntarily withdrew leaving unpaid obligations; were involved in court actions such as receivership, reorganization, or arrangement; or voluntarily compromised with creditors out of court.

CURRENT LIABILITIES, as used in the Failure Record, have a special meaning; they include all accounts and notes payable and all obligations, whether in secured form or not, known to be held by banks, officers, affiliated companies, supplying companies, or the Government. They do not include long-term, publicly held obligations. Offsetting assets are not taken into account.

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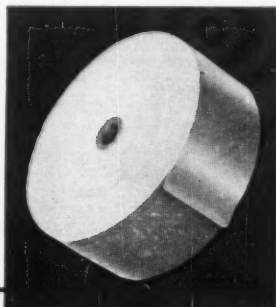


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- ☐ 7. When you cannot get enough readable carbons in one typing.
 - ☐ 8. When you forget to ask for additional carbons.
 - ☐ 9. When you need more copies than you anticipated.
 - ☐ 10. When copies of original work sheets in pen or pencil are suitable for distribution.
 - ☐ 11. When you need copies of a sketch, diagram, etc.
- ☐ 12. When you need copies of a magazine or news item.
- ☐ 13. When an original document is of a highly confidential nature.
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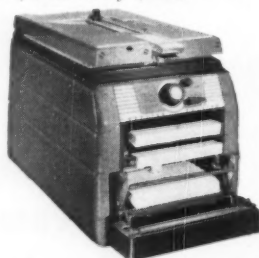
See free demonstration in your office. See your own records duplicated by your own staff. No obligation.

Completely different—you get 3 or more photo-exact copies from just 1 sheet of sensitized paper; you expose original only once; make your copies in full room light. The 8½ x 11 model printer (above) costs only \$240.

New! Legal Model Now Available

This new Verifax Printer is especially designed for offices handling larger-size documents, including those 8½ x 14 inches in size. Makes 3 copies in 1 minute for less than 5¢ each. Many extra features in this new, wider-scope machine, which is surprisingly low priced at \$395.

Prices quoted are subject to change without notice.



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Executive BOOKSHELF

Making Money Made Easy

Would you like to be able, literally, to sell refrigerators to Eskimos? Then the new, stimulating book, *How to Sell Your Way Into the Big Money*, should be as welcome as an unexpected sales order.

For this inspirational book, which stands apart from other books of its kind like an eager salesman among mere order-takers, covers in a most practical fashion many of the perturbing problems of selling. Author Vincent F. Sullivan, a newspaper executive, has devoted many pages to such intriguing problems as party girls, drinking, kick-backs, and other topics seldom treated in how-to-sell books. He offers his expert advice on how to drink without drooping, how to dress, when to make a sales call, and even how to select a wife who will not upset your future sales program.

Among the most arresting parts of the book is the description of how to tour the Bowery (or any other Skid Row) so as "to understand human behavior and how one reacts to different situations." Or perhaps one can discover there a startling study of what became of many at the other end of the seesaw from those who sold their way into the big money.

The Citadel Press, 120 E. 25 St., New York 10, N. Y., 312 pages, \$3.95.

Putting Ideas to Work

Ideas are like children. They are much easier to talk about than to bring to maturity. So the new book

by Ray Josephs, *How To Make Money From Your Ideas*, should be as welcome as the prodigal son, for it offers a detailed step-by-step prescription on developing ideas.

Not merely an inspirational recital of how gadgeteers have turned their fancies into funds, this book by a public relations executive covers such difficulties as protecting your ideas, presenting them effectively, and finding buyers for them. While the author lists many areas in which new products are just crying to be born, he doesn't limit his ideas to gadgets and gimmicks.

Instead, he considers virtually all varieties of ideas including advertising slogans, new services, merchandising methods, and even movie plots. One of the best ideas yet has been the creation of this handbook for producing that commodity for which men are most highly paid.

Doubleday & Co., Inc., 575 Madison Ave., New York 22, N. Y., 318 pages, \$3.95.

New Source of Wealth

Too frequently books on the future use of natural resources pass quickly over the possibility of finding new sources of food, minerals, and power from the sea. Not so the new, intriguing volume, *The Sun, The Sea, and Tomorrow*, which examines with the patience of a clam-digger that new frontier which is all around us.

Authors F. G. Walton Smith and Henry Chapin have written an informal yet strenuously scientific

Continued on page 64

New way to save money and time

without disrupting your office or your people!



Girl has finger-tip control over thousands of cards from sitting position.

Revo-File brings records to your clerks instead of sending clerks to the records. Simple. No costly transposition job necessary!

Isn't this a fine, simple, practical idea for your office? Let the file cards "go round in circles" instead of your clerks! Save all the lost time, motion and energy that old-fashioned drawer and tub files are stealing from you. Save on your operating costs, too. And improve employee morale, customer relations and overall efficiency

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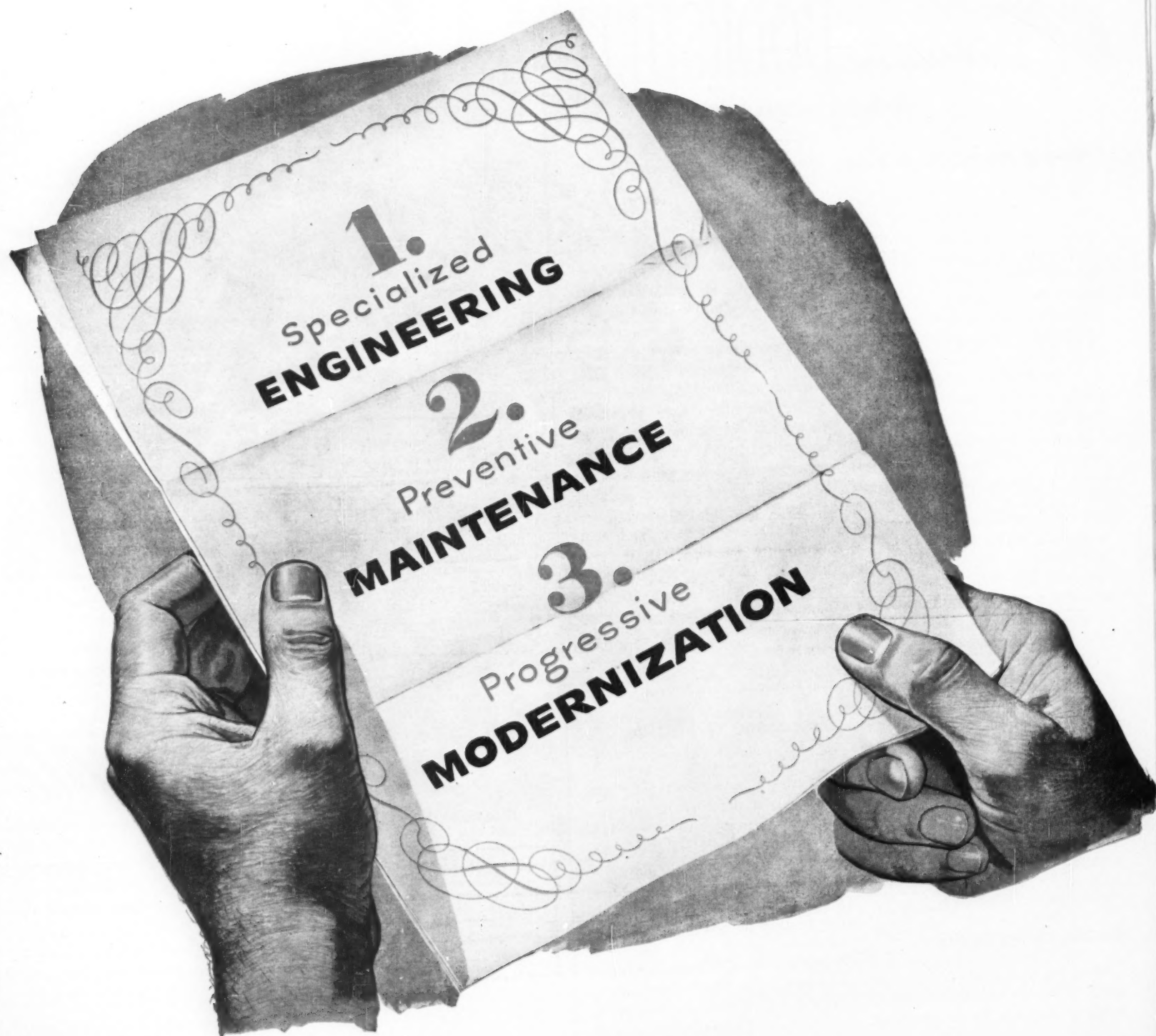
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OTIS GENERAL DUTY FREIGHT ELEVATORS



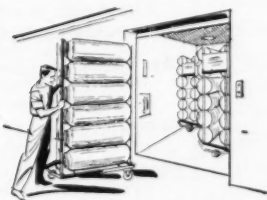
D U N ' S R E V I E W and

"INSURANCE"

HAVE THREE EXTRA FACTORS OF SAFETY

Whenever you need a freight elevator, it should be on duty. It's like a watch. If it isn't running it's useless. And costly. Especially when lack of elevator service holds up a production or materials handling line, or warehouse delivery trucks, or automobile parking, or mining, etc.

You can save money in the long run with Otis general duty freight elevators. They're standardized. They have lifting capacities of 2,500 up to 10,000 lbs. or more. And full safety features, power doors, self-service or attendant operation.

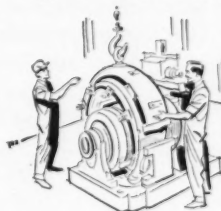


Only Otis freight elevators can offer you always-on-duty "insurance." It's based upon these 3 extra factors of safety.

1 Specialized ENGINEERING

Otis hoisting machines, which are the heart of the installation, are not adaptations of standard commercial

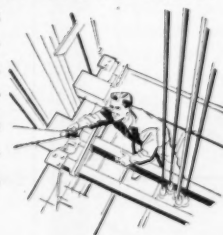
equipment. Like every other part of an Otis installation, they're specifically designed to meet the unique requirements of elevator service. And



every part is built in Otis plants under rigid quality control. All with a basic knowledge of elevatoring that can't be matched.

2 Preventive MAINTENANCE

Otis maintenance keeps Otis freight elevators performing like new—year after year! Otis service is engineered-service by the maker that prevents slowdowns and breakdowns; extends elevator life by 50%; eliminates expensive, unexpected repair bills; keeps replacement parts available over 60 years; supplies field-trained men having an aggregate of 21,500 years' elevator experience; provides 24-hour-a-day service on a nationwide basis through 268 offices. All, because we never lose interest in the performance of an Otis installation.



3 Progressive MODERNIZATION

An Otis freight elevator need never become obsolete. New developments are made applicable to existing installations. We strongly recommend planned, progressive modernization as always-on-duty "insurance."

AUTOMATION

You can have freight elevators where you want them, when you want them. The same advanced electronic skill that developed AUTOTRONIC® completely automatic operatorless elevators for busy office buildings is ready to make completely automatic freight elevators an integral part of your production line.

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Our broad experience in the field of industrial elevatoring qualifies us to advise on standard or special adaptations of Otis elevators for unusual freight handling requirements. This experience is available for any size installation, however large—or small. Call any of our 268 offices for details.

Otis Elevator Company
260 11th Ave., New York 1, N. Y.



FREIGHT ELEVATORS

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Statement of Condition

September 30, 1954

Resources

Cash on Hand and in Banks	\$ 225,528,534.08
U. S. Government Obligations	433,326,655.38
State, County, and Municipal Bonds	54,696,674.41
Other Bonds and Securities	25,143,544.41
Stock in Federal Reserve Bank	1,650,000.00
Loans and Discounts	568,845,367.65
Bank Premises and Equipment	10,931,888.95
Other Real Estate	1.00
Customers' Liability under Acceptances	965,453.34
Accrued Interest Receivable and Other Assets	7,233,391.28
Total Resources	\$1,328,321,510.50

Liabilities

Deposits	\$1,232,683,273.55
Acceptances Outstanding	1,009,876.53
Reserve for Unearned Discount	8,660,782.09
Reserve for Interest, Taxes, etc.	13,238,982.76
Other Liabilities	1,880,657.16
Capital Funds:	
Capital Stock	20,000,000.00
Surplus	35,000,000.00
Undivided Profits	15,847,938.41
Total Liabilities	\$1,328,321,510.50

U. S. Government and other securities carried at \$169,573,035.06 are pledged to secure U. S. Government Deposits, other public funds, trust deposits, and for other purposes as required or permitted by law.

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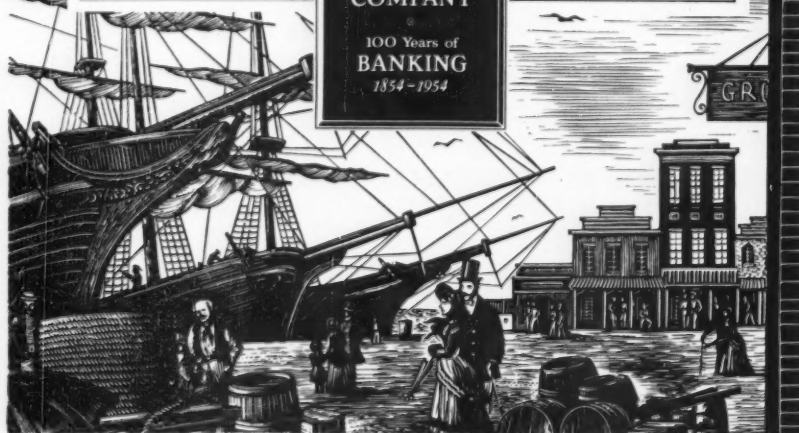
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summary of the progress which already has been made as well as possible future plans for putting to full use the vast waters from which life first came. Since about 70,000 are added to the world's population each day and since about two-thirds of mankind eat insufficiently at the present time, it is clear that ways will have to be found to unlock this vast storehouse.

Although the development of atomic energy may offset to some extent the swift disappearance of irreplaceable natural resources, the fuel for atomic plants is, itself, not inexhaustible. Since each cubic mile of sea water contains eighteen million tons of magnesium chloride, four million tons of potassium sulfate, and many other valuable minerals, it is apparent that untold wealth awaits those who find the keys to Davy Jones' locker.

Charles Scribner's Sons, 597 Fifth Ave., New York 17, N. Y., 210 pages, \$3.50.

The Urge to Merge

In recent months the urge to merge has assumed the impetuosity of mating in the Spring. Readers interested in this development and the future course of Government permissiveness should find several new books of particular value:

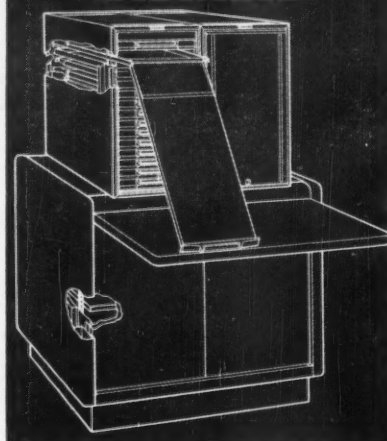
• Professor J. D. Glover of Harvard has gathered together in the new volume, *The Attack on Big Business*, the critical crossfire which business men have faced during recent decades. To enable business men to see themselves as others see them and measure their acts accordingly, the author has presented the considered opinions of an entire gallery of spokesmen from Charlie Chaplin to the Pope. Whether the critique of business is on the grounds of ethics, economics, or democracy, it adds to the public resistance to further business growth. Hence, a reading of this engrossing volume should provide vivid understanding of the forces which may prevent further mergers in the months to come.

Division of Research, Harvard Extension School, Soldiers Field, Boston 63, Mass., 370 pages, \$4.

• The efforts to revise the antitrust laws—which will probably gather momentum in the months ahead—are given most searching analysis in the new book, *Fair Competition: The Law and Economics of Antitrust Policy*, by Joel B. Dir-

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GREATER CONVENIENCE—with more capacity, wider label holders slanted for improved visibility, more finger space.

EASIER TO USE—intermembered slides forming partitions between trays, nylon rollers and rubber stops reduce friction, provide smooth, speedy, quiet action.

For more information write for illustrated brochure No. 1040.



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Now in the hands of Technical Service, Inc., manufacturers of the famous TSI "Suitcase" Projectors, the DeVrylite reputation will be further strengthened. Combined experience and facilities guarantee the highest quality in every unit. An efficient and expanding organization assures the finest service that can be offered by any projector manufacturer.

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lam and Alfred E. Kahn. In assessing the supposed need for changing Federal legislation to meet the "realities of the new competition," the authors present in a most readable fashion a detailed summary of the legislative developments in recent years. Since the authors have cut a clean swath through the undergrowth of legal jargon, one need not know a tort from a retort to read this valuable volume.

Cornell University Press, 124 Roberts Place, Ithaca, N. Y., 307 pages, \$4.50.

• One of the most penetrating studies of competition in the American economy—and one which is certain to be considered in any serious discussion of big business—was carried on for several years by the independent organization, The Brookings Institution. After analyzing the patterns of corporate behavior in dozens of industries, the author, A. D. H. Kaplan, concluded in *Big Enterprise in a Competitive System* that leading the pack is an arduous task requiring strenuous efforts and acute competition.

The Brookings Institution, Washington 6, D. C., 269 pages, \$4.00; paper-bound, \$2.00.

Books As Business Gifts

While only a small percentage of business men (about 13 per cent in a recent survey) present books to their customers, suppliers, and others at Christmas time, books head the list of gift preferences. A survey of 519 companies by the American Book Publishers' Council revealed that business men prefer books to gift certificates two-to-one, to liquor and food three-to-one, and to cigarette lighters seventeen-to-one. Among the advantages of books as gifts are their relative permanence, the ability to tailor the gift to particular tastes, and the ease of exchanging a book if the recipient already has a copy.

Probably one of the most popular gift books this season will be Carl Sandburg's one-volume life of *Abraham Lincoln*, published by Harcourt, Brace & Co., 383 Madison Ave., New York 17, N. Y., at \$7.50. Several others to please varied tastes are listed here.

A PICTORIAL HISTORY OF THE WILD WEST, by James D. Horan and Paul Sann. Crown Publishers, Inc., 419 Fourth Ave., New York 16, N. Y., 256 pages, \$5.95.

Gunfighters, both deadly and dedicated, stalk across these fascinating pages as they did in the bullet-splattered past. More than just a gallery of rogues, this volume recreates a turbulent time in American history for

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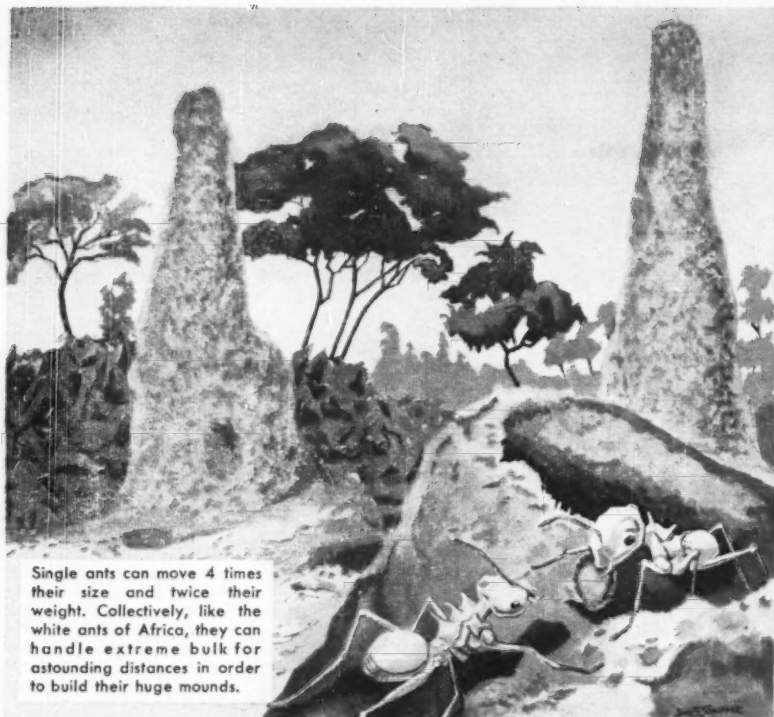
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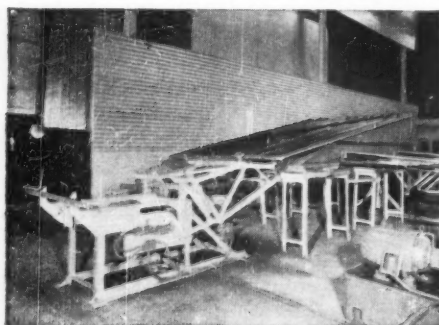
It was not too long ago, as time is measured, that man was restricted in what he could move from one place to another by the limits of his individual brawn. But now, through science, he need simply to push a button to handle the most cumbersome object.

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THE BOOK OF THE SEA, edited by A. C. Spector. Appleton-Century-Crofts, Inc., 35 W. 32 St., New York 1, N. Y., 488 pages, \$10.

Afloat on the current wave of enthusiasm about the sea is this provocative volume which should make a pleasant present for even the most confirmed landlubber. Over 150 illustrations and selections from literature and history effectively portray man and the sea. Sections are devoted to explorations, life afloat, storms, battles, and wrecks, the science of the oceans, and the mysticism of the sea.

THE REVOLUTIONARY WAR and THE CIVIL WAR, as told by James Street. Dial Press, Inc., 461 Fourth Ave., New York 16, N. Y., 2 vols., 192 and 144 pages, \$6.

The first volume is subtitled: "Being a De-Mythed Account of How the Thirteen Original Colonies Turned a World Upside Down." These profusely illustrated, unorthodox histories should please both the amateur historian and the general reader, but not those who prefer legends to lively facts.

AMERICAN SCIENCE AND INVENTION, by Mitchell Wilson. Simon & Schuster, 630 Fifth Ave., New York 20, N. Y., 400 pages, \$10.

More than 1,000 illustrations help the author to present the entire panorama of American ingenuity from the invention of the safety pin to the atomic bomb. This large (9 x 12) volume portrays the men and machines, as well as the social forces that helped and hindered them, as they changed the shape of American life. Non-technical readers will value this book as a pleasant, painless primer of American technology.

ART AND INDUSTRY, by Herbert Read. Horizon Press, 220 W. 42 St., New York 36, N. Y., 239 pages, \$6.

Richly illustrated with 130 photographs (most of them full-page) of products, machines, and factories, this handsome volume offers a critical examination of some of the output of American industry. Insisting that machine-made products need not lack the artistic values of custom craftsmanship, the author presents practical principles for the creation of works of art through industrial design. The broad cultural approach to the subject should endear the volume to many who are not industrial designers.

THE EAGLE, THE JAGUAR, AND THE SERPENT, by Miguel Covarrubias. Alfred A. Knopf, Inc., 501 Madison Ave., New York 22, N. Y., 320 pages, \$15.

The title refers to the three animals which lend their grace to the art of the American Indian. This lavishly illustrated volume contains twelve full-color pages, 100 photographs, and over 100 line drawings of the primitive yet exquisite art of the Indians of Alaska, Canada, and the United States. While emphasis is on North America, Central and South America are also considered as the author, an internationally famous art scholar, discusses the origin of Indian culture. Most appropriate for art enthusiasts, Americana collectors, amateur historians.

THE TASTE-MAKERS, by Russell Lynes. Harper & Brothers, 49 E. 33 St., New York 16, N. Y., 362 pages, \$5.

An informal history of the men and movements responsible for the development of American taste in everything from architecture to Van Gogh. Author Lynes, who is managing editor of *Harper's Magazine*, discusses with incisive wit the architects, designers, merchants, and others who form the shape of things to come. Contains 40 pages of illustrations and delightful chapters on the artistic modes formed in and by the corporation, as well as the famous essay, "High-brow, Lowbrow, Middlebrow."



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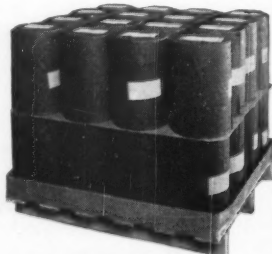
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LIBRARIES

Continued from page 41

the advantages given their competitors in the cities where such service is provided.

Just what are the aids to business provided by such an institution? The brochure, "A Half-Century of Power for Business," issued by the trustees of the Newark Public Library to mark the fiftieth anniversary of that institution, highlights the collections and use of that library as well as its progress. In the 40 years that comparable statistics have been kept, the requests of business men for assistance have increased over 900 per cent. The fact that that information is as near as the telephone has resulted in as many calls for information through that channel as through visits to the library itself.

Just as the number of business men who turn to library resources has increased, so has the focus of their interest shifted. In the early days there was heavy use of city and trade directories as their value in developing markets was understood. As business growth accelerated, the need for improved methods of office organization was a pressing concern and materials bearing on such problems were in frequent demand. In these later years with the detail of business methods simplified and no longer a major interest, the questions that reach the library turn on much more vital problems. Market studies, business forecasting, problems of expansion, decentralization, employee relations, executive development, and the increasing attention to the economic aspects of retirement, all find their place in the daily round of the library service.

As the number of public libraries focusing attention on effective service to business in their communities increased, so did library personnel devote greater attention to facilitating the use of these resources. Perhaps the first major step in this direction was carried out with the co-operation of Merle Thorpe, then editor of *Nation's Business*. He secured the co-operation of John Cotton Dana and the staff of the Newark Business Library in the monthly compilation of a "White List of Business Books." These descriptive listings were introduced by a short essay on their application to the topic discussed, ranging from Or-

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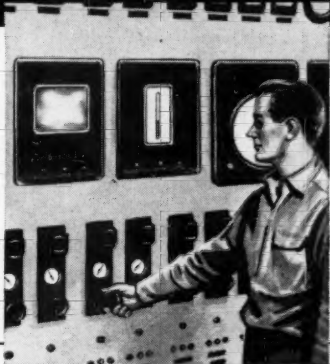


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Please send me without obligation a copy of new Bulletin No. 1136 showing how the Diamond "Utiliscope" (Wired Television) is being used to cut costs, improve operations and promote safety.

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OFFICES IN 39 PRINCIPAL CITIES

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Since 1903, Diamond has Manufactured
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ganization, The Mailing List, Those Letters You Sign, The Investor's Library to How to Capitalize the Pamphlet and How to Buy Books.

Possibly this was the first comprehensive introduction to the field of business information that has received wide distribution. Its monthly publication from November, 1917 to July, 1919 gave noticeable impetus to the use of such data. The appearance in 1916 of "1600 Business Books" followed by its successors, "2400 Business Books" and "Business Books, 1920 to 1926," focused attention on such literature until the growing emphasis on research through collegiate and graduate schools of business and the increasing attention given related texts by the major publishers, made the continued compilation of such comprehensive bibliographies unnecessary.

Further Data

In still another field did the absence of any inclusive listing produce action by the Newark institution. While the years brought additions to the number of highly useful trade and professional directories, information on these volumes was difficult to secure. Those who could profit by their use had no key to their number nor the fields they covered. As a result of efforts to secure such publications a considerable amount of information on their content and sources had been accumulated at the Newark Business Library.

An effort to make this information more widely useful resulted in the compilation of "The Mailing List Directory" by Linda H. Morley and Adelaide C. Knight, then of the Business Library staff, and its publication in 1924. This basic tool in the acquisition and use of directories had not later editions but modifications, and simplified versions have since been compiled and published both by the Newark Business Library and by the United States Department of Commerce.

As the schools of business in colleges and universities grew in number and quality and their graduates came to play a more prominent part in the direction of business enterprise, so did publications in the field of business both increase in number and receive more thoughtful attention by reviewers. The journals issued by universities devoted more

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space to such reviews as did the many periodicals in the trade press.

In its issues of *Business Literature* for April-May, 1950, the staff of the Business Library listed the periodicals devoting space to reviews in this field. Other guides to business data appearing regularly have been this monthly note of the Business Library, *Business Literature*, published since 1928 and *Business Information Sources* issued by the Business Information Bureau of the Cleveland Public Library since 1930.

Who Uses Them?

The range in application of business information resources has proved almost unlimited. The use of city directories alone is far more comprehensive than the incidental pursuit of an individual. Employees of insurance companies spend hours checking clues that may result in tracing the recipients for unclaimed equities. Lawyers find these directories invaluable in identifying individuals and in tracing people needed in the clearance of titles. Credit investigators have found them first aids while those seeking potential markets study the classi-

fied sections with the utmost care.

While the investment services are studied for the security information they contain, their use in the study of industries themselves is as important. Both the college graduate weighing the relative opportunities in different industries and the experienced business man seeking fields of expanding opportunity find their detailed analysis both of industries and specific companies of the greatest value. In connection with the related texts, periodicals, and government reports these services offer a sound foundation for the selection of a future vocation.

A constantly recurring problem for many is the transfer from one part of the country to another according to the dictates of their employers. The shift of a family involves many elements and a successful solution of its problems can come through consultation of appropriate publications. The selection of a home community with a corresponding or improved standard of living can be expedited through study of *Sales Management's* Survey of Purchasing Power. Checks on community quality can

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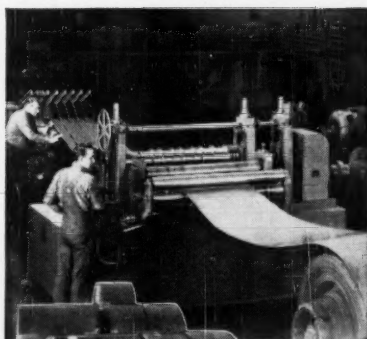
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One manufacturer said: "Our strip inventories have been reduced by 60% and greatly simplified. Our requirements in slit strands can now be quickly met from a relatively small stock of mill-width coils." Another manufacturer remarked: "We no longer have to worry about ordering strip long in advance, complicating our production planning." A third manufacturer made this comment: "We can now buy our strip wherever we can get the best quality, price and delivery. That saves a lot of time, money and worry."

Any one of these and other benefits may in itself be sufficient to justify the investment; yet, quite aside from this, the *direct savings in slitting cost always repays the investment in a short time*, often in less than a year.

Ask for the Yoder Slitter Book. It contains cost studies, time studies, information on scrap disposal, coil handling, small versus large slitters, and many other subjects of interest to users of coiled strip and sheets.

THE YODER COMPANY
5531 Walworth Ave., Cleveland 2, Ohio

**Rotary
Gang
SLITTERS**



be made through study of the schools, the libraries, the churches, the hospitals, in appropriate directories. Data on tax rates, bonded debt, and other factors affecting the quality of city government can be analyzed from data in investment manuals and other sources.

Personal Uses

The use of collections of business data in weighing matters of personal advancement has proved invaluable. Time after time have individuals made studies of the companies in various areas to gage the opportunities they may offer. Information from many sources may be pieced together to form a basis for comparison. Data on the social and business affiliations of the officers may lead to the discovery of favorable contacts. The opportunity offered for familiarity with the current conditions in any company can result in an informed approach to any discussion that may well bring favorable results.

Institutions benefit as greatly from the accessibility of a comprehensive collection of business data. Not only insurance companies, but progressive banks find all important data there. Even in gaging the advisability of certain loans, the use of directories for tracing through their checking accounts the major contacts of applicants, banks find the use of these library collections of special aid.

Co-operation with local associations and chapters of national associations is frequently a distinguishing feature of the programs of these library departments. In Cleveland, with its strong trade association development, the Business Information Bureau of the Cleveland Public Library is so closely allied with such activities that it is the depository for



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Clears the entire opening — jamb to jamb, floor to lintel.

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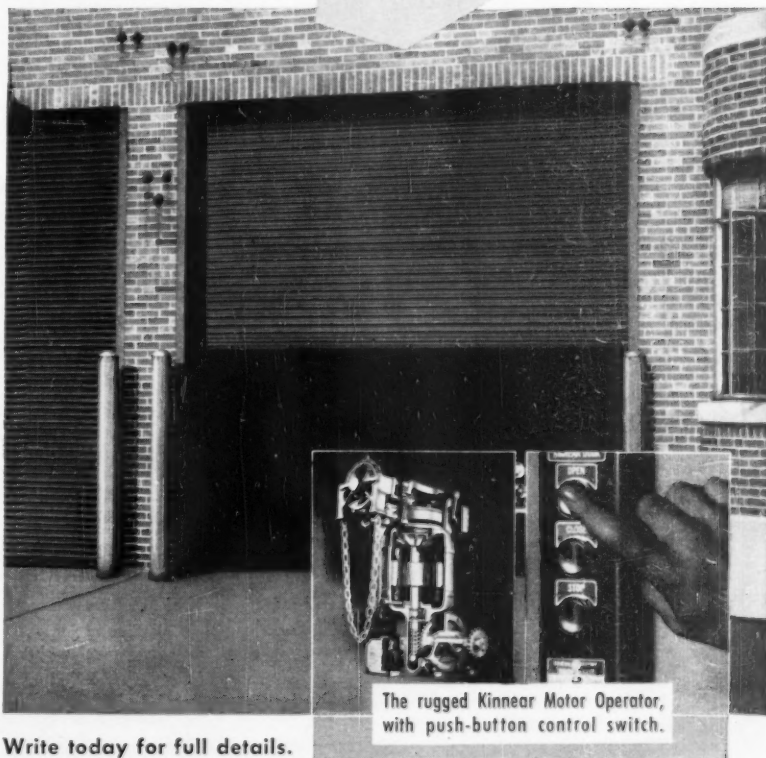
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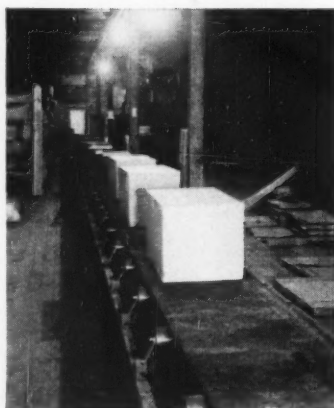
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descriptive literature... sound movies
cost studies... nearby job inspection... plant layouts

the winning exhibits in the annual awards for trade association programs.

For years the Newark Business Library has used its monthly *Business Literature* to summarize references to data on current problems and often devotes an issue to the special needs of an association. Illustrations of such co-operation are the issues on "Rehabilitation and Other Real Estate Trends Today" prepared for the Newark Real Estate Board's campaign toward the rehabilitation of areas suffering from urban blight, "Sales Engineering and Industrial Marketing" prepared to supplement an institute sponsored by the Industrial Marketers of New Jersey, and the listing in one issue of "Significant Books on Cost Accounting," purchased through the annual gift of the Newark Chapter of the National Association of Cost Accountants.

Expanding Fields

While business information resources in all categories of media have grown extensively in these last fifty years, perhaps the increase is most marked in three fields, periodicals, government publications, and "services." The list of magazines included in the pamphlet describing Business Library collections published in 1910 ran to approximately 50 titles, while today several hundred are regularly received to form the backbone of the reference collection on developments in business policy and practise as well as to provide current market statistics, prices and similar economic data.

The tremendous expansion in the last 50 years in statistical and other material gathered, compiled, and issued by governmental agencies is too well known to require comment. Of four units whose compilations are of special value in business research, the Commerce and Labor Departments had been only just organized in 1904 and years were to pass before the Federal Reserve System and the Federal Trade Commission came into being. Since their establishment, the distribution of data by these agencies has been a boon to business research.

Perhaps the most conspicuous feature in the growth of business information services in this half-century is in the publication of services to meet almost any need for current and specialized information. Where



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50 years ago Moody's and Poor's services on railroad securities, Dun and Bradstreet's credit rating service and Best and Spectator publications in the field of insurance were known and valued by a rather limited clientele, today countless publications such as Standard Advertising Register and McKittrick Directory of Advertisers in advertising, Dow Service Daily Building Reports, and Brown's letters in construction and Real Estate Analyst in real estate, Standard and Poor's and Investograph in the field of investments, and Kiplinger, Whaley-Eaton, and Congressional Quarterly in reports on Washington developments are but a few illustrations of the growth in this area. The vast quantities of printed matter in services devoted to the interpretation of government regulation of business alone, from income taxation to price and wage controls have made heavy demands on library budgets as these institutions strive to meet the needs of their business communities.

The great gains in the economic well-being of the country in the last half-century have resulted from many conditions. Among the least conspicuous but possibly the most

far reaching are the influence of the graduate schools of business and the increasing reliance on published information as a basis for action.

The Way Ahead

The example set by John Cotton Dana in the establishment of a library department especially devoted to discovering and meeting business needs for such data inaugurated a movement to relate the library resources provided by the taxpayer to the furtherance of economic well-being. In many areas the progress along these lines is notable, in others it is scarcely apparent. Failure of a business community to receive the library service found in Cleveland, Chicago, Boston, Newark, and other places is the result of its own inertia.

While some libraries lead the way all can follow this path. Progress in the relationship between business and libraries will come as business men realize what this relationship means. They must not only provide the support that makes such progress possible but call for such service as if offered to their competitors in other communities.

THE END

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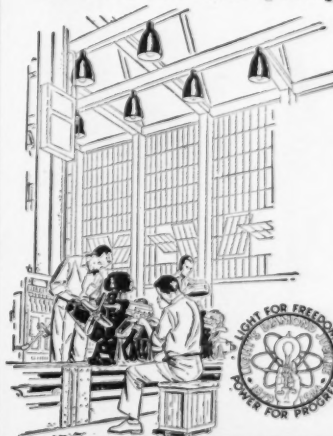


Improve your factory lighting ...and save money!

**SYLVANIA'S
IMPROVED MERCURY VAPOR LAMPS
GIVE MORE LIGHT AT LOWER COST!**

J-H1 . . . This color-corrected lamp is coated on the inside with a special phosphor which provides a "Golden White" light . . . a more pleasing color than the bluish-green of natural mercury vapor lamps.

These lamps give twice the light output for the same amount of wattage. And, they provide several times the life of incandescent lamps. As a result, Sylvania Mercury Vapor Lamps help to lower maintenance costs, improve seeing conditions . . . and speed production, too.



A COMPLETE LINE

Sylvania Mercury Vapor Lamps are available in types and sizes for every industrial requirement. Of special interest are the improved color-corrected lamps with the "Golden White" light. New illustrated folder gives complete information. Write to Dept. 4L-2311, Sylvania for your copy today!

E-H1 . . . Ideal for "high bay" industrial lighting. Rated at 400 watts, delivers 20,000 lumens.



A-H1 . . . Popular, low-cost mercury lamp. Rated at 400 watts with an output of 15,000 lumens.

C-H5 . . . a smaller size of the E-H1 type, for general industrial applications. 250 watts, 11,000 lumens.

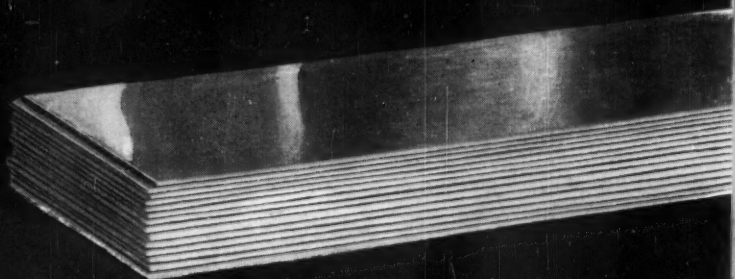


X-H1 . . . A mercury lamp with built-in reflector for industrial lighting applications. 400 watts, 16,000 lumens. Also offered with special color-correction phosphor.

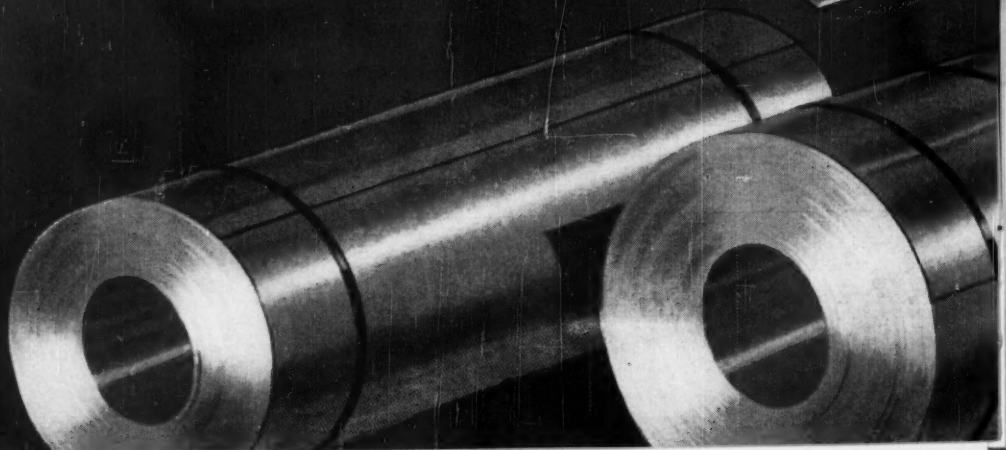
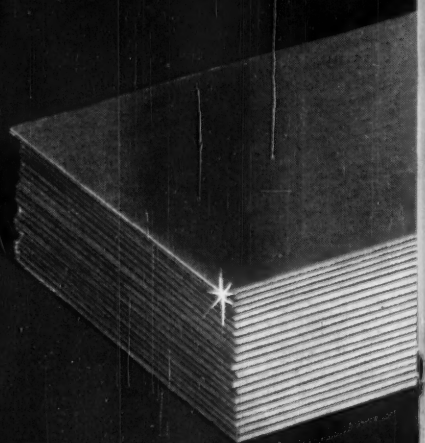
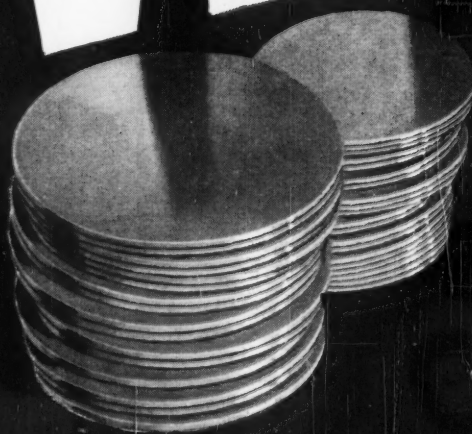
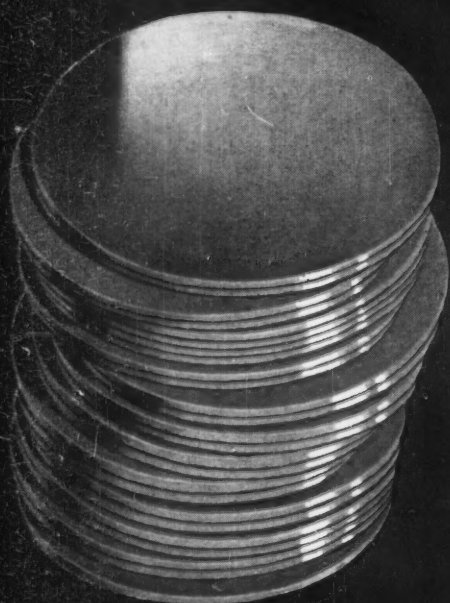
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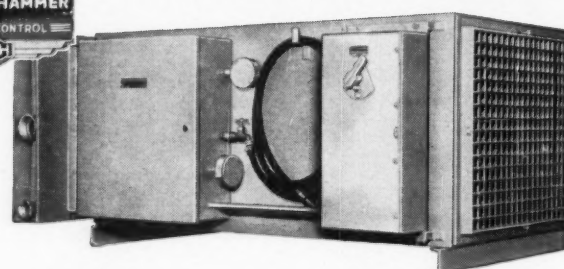
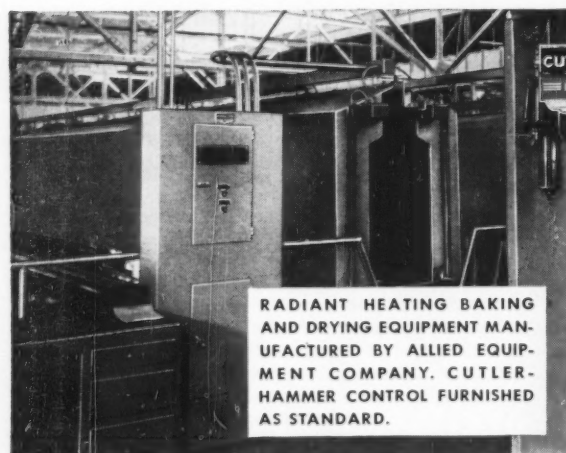
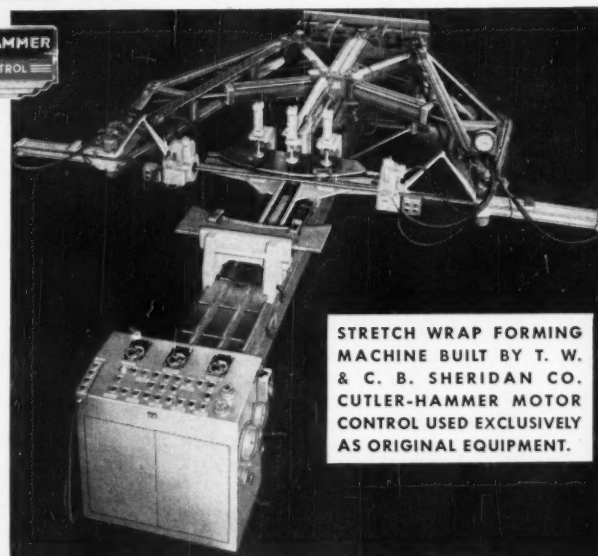
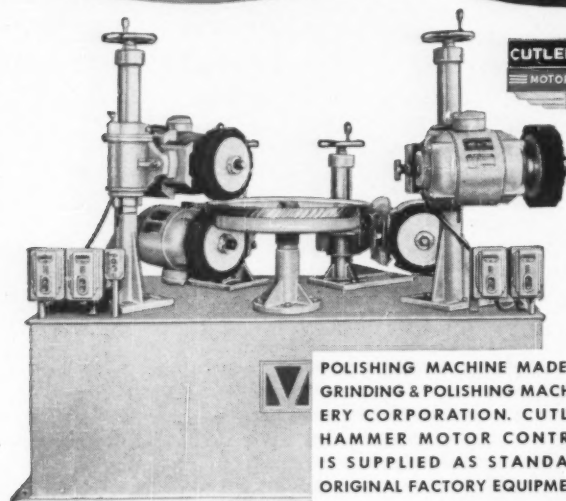
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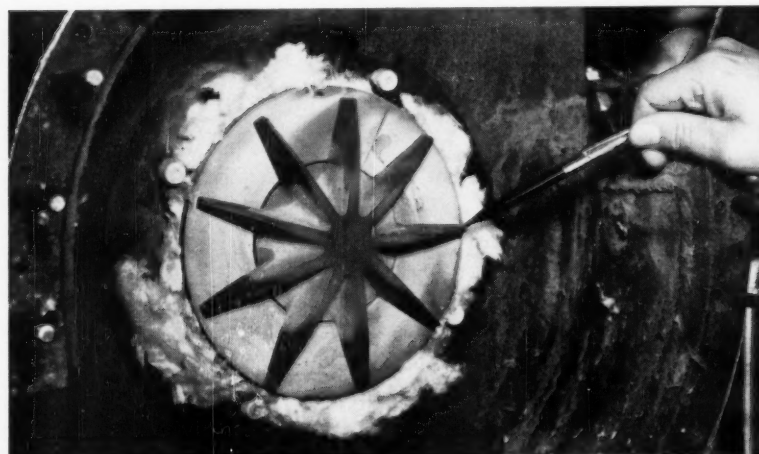
Brush-on coatings with amazing stamina, adhesive-backed tape and sheeting to protect and decorate, bags that shrink to fit your product. . . . These are among the new and interesting materials that may hold the answer to your troublesome design or production problems. Here's information on a baker's dozen:

Shrinkable polyethylene film may now be had to produce neater, smoother packages. Central States Bag & Paper Company, for instance, is using Visking's shrinkable extruded film, *Visqueen S*, to produce sacs that form a skin-tight covering on food products, bottles, and other items. After filling, "Poly-Skin" bags are evacuated, the top clamped shut. Then, the bag is dipped for just three seconds in a 215° fahrenheit propylene glycol solution—and the job is complete. According to

Central States, the bags retain their strength, low-temperature resistance, and printability; yet they're surprisingly low in cost.

Tampering can be spotlighted with a new sealing compound developed by Minnesota Mining & Manufacturing's Detroit Adhesives & Coatings Division. The compound (EC-1252), which dries to form an unusually brittle film, can be applied to locks, fasteners, access doors, and packages to show whether they've been disturbed. It can also be used to show up accidental changes in adjustment of machine parts and fasteners.

Sueded pressure-sensitive tape, a flock-coated material, comes from the research laboratories of Minnesota Mining & Manufacturing at St. Paul, Minn. It might prove useful for protecting the bases of lamps and clocks, lining instrument cases



Titanium carbide, offering great heat resistance and hardness, rates consideration for extreme-temperature jobs. Kennametal, Inc. built this experimental gas turbine to show the stamina of its carbide, Kentanium, reports operation at 30,000 rpm and nearly 2,000° fahrenheit did not faze it.

new slide-and-filmstrip projector by Kodak



*Kodaslide Signet 500 Projector,
Filmstrip Model . . .*

Here's the newest...the smoothest... the most efficient slide-and-filmstrip projector for modern business use!

For adding extra punch to your sales presentations . . . for making training courses more effective, here's a versatile filmstrip projector that just can't be beat. New in virtually every detail, it represents sweeping advancements in projector design. Here, for example, are six of its outstanding advantages.

1. Brighter, Sharper Pictures—Superb Kodak Ektanon Projection Lens (*f*/3.5 or *f*/2.8), Lumenized lens-and-condenser system, aluminized glass reflector, and 500-watt lamp add up to amazingly bright, evenly illuminated pictures. Projection is so brilliant that in most cases there's no need for room darkening!

2. Smoother Operation—The Kodaslide Signet 500 Projector has the famous Geneva movement—a precision mechanism that advances each frame in *smooth* sequence . . . so fast, viewers can hardly see the transition. No jumping, no jerking. Nylon gearing provides positive, quiet action . . . assures

amazingly long life. Film is handled gently by the filmstop mechanism—glass pressure plates separate before filmstrip can move.

3. Faster Setups—Drop-in loading ends fuss because the easy-to-get-at sprocket engages the filmstrip *immediately*. Special framing lever makes centering fast and accurate. Rewind device permits quick refiling of films.

4. Cooler Operation—Operation is cool and safe because the special *impeller*-type blower delivers a far greater volume of air with less noise than formerly obtainable. Thick heat-absorbing glass protects film. And the multiple aluminum baffle system cools both projector and film.

5. Automatic Leveling—Individually spring-loaded front legs snap into position, automatically compensating for unevenness. Back leg adjusts for aligning picture on screen.

6. Top Versatility—The Signet 500 adapts easily to use as a 2 x 2 slide projector! Simply remove the filmstrip mechanism and slip in the slide-film changer *included with the projector*. The complete slide-and-filmstrip projector is just \$98 (with *f*/3.5 lens).

Price subject to change without notice.

IN ADDITION to slide and filmstrip projectors, Kodak offers a wide range of other audio-visual equipment . . . 16mm. movie cameras and projectors; 35mm. still cameras; table and pocket viewers for Kodachrome slides; stereo camera and viewers; high-speed movie camera for engineering and methods studies; plus a complete range of special aids for making business pictures.

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City Zone State

and jewel boxes, and backing up printing press mats. 3M can make it in a variety of colors and in widths up to 26 inches. Right now, though, it's producing only red and green in half-inch-by-three-yard rolls. Free samples for testing are obtainable on request.

Another new adhesive-backed material, this one developed by the plastics divisions of Monsanto Chemical and Cohn-Hall-Marx, is now making its debut in retail stores. It's a self-adhering vinyl plastic fabric for use as a decorative, protective, waterproof covering for shelves, table tops, furniture—almost any dry, flat surface. Made in a variety of colors and patterns (including wood grains), it's called *Con-Tact*. Industry might find it useful for color-coding as well as for covering workbenches.

Three metals that are job-hungry though they've been obtainable commercially for a number of years are gallium, tellurium, and thallium (see *Modern Industry*, February 1950, page 70, and May 1951, page 48). Each has a tempting, but frustrating combination of properties which, so far, have defied major application.

Gallium remains liquid over a very wide temperature range (86° to over 3,000° fahrenheit), and expands rather than contracts when it freezes. It alloys readily with other metals, and, in many cases, increases their strength. The trouble is, though, it's pretty expensive (nominal price is \$1,000 a pound), and likely to remain so, at least until demand picks up.

Tellurium improves machinabil-

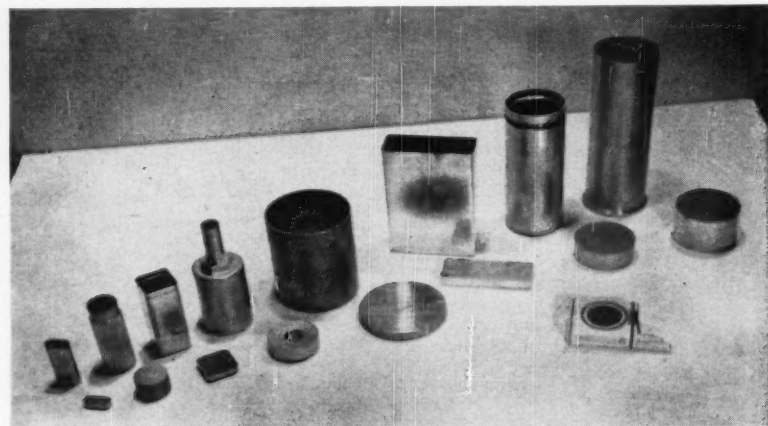
ity of many copper and steel alloys, and has several other advantages, including relatively low price. Unfortunately, though, it makes those who handle it smell as though they'd been eating garlic for weeks.

Thallium differs from the other two in that its compounds are often highly toxic. Nevertheless, it is used in sight glasses for infra-red optical equipment and "sniper-scopes," and has found a few other jobs. One of its interesting properties is its ability to form relatively high-melting alloys with lead.

Information on gallium may be obtained from Aluminum Company of America; on tellurium and thallium from American Smelting & Refining.

Brush-on rubber coatings that will dry in air to form a resilient, padded surface are being offered to both consumer and industrial markets by Rubber Magic, Inc., Brooklyn 32, N. Y. The company says the material, made of natural rubber, is non-flammable in liquid form, can be thinned with cold water, and will stand temperatures to 220° fahrenheit after drying. It's said to provide an airtight seal and to be excellent for use as an electrical insulator and as a sound-absorbing coating. Thin films might serve as corrosion-preventing peelable coatings. Retail price for a half-pint is \$1.29; a quart, \$3.75; colored or transparent. Industrial price for the gallon size is \$6.

Stretchproof glass fiber sleeving, a woven tubular material for insulation, filtration, and plastic reinforcement, is being made by Hess, Goldsmith & Company. According



Impact extrusion is an up-and-coming technique for mass-producing many complex shapes. Magnesium Company of America made these, notes process is particularly worth considering for round, square, oblong, cup, or shell-shaped parts having a length-diameter ratio of more than two-to-one.

Cities Service cracks wise – and well...

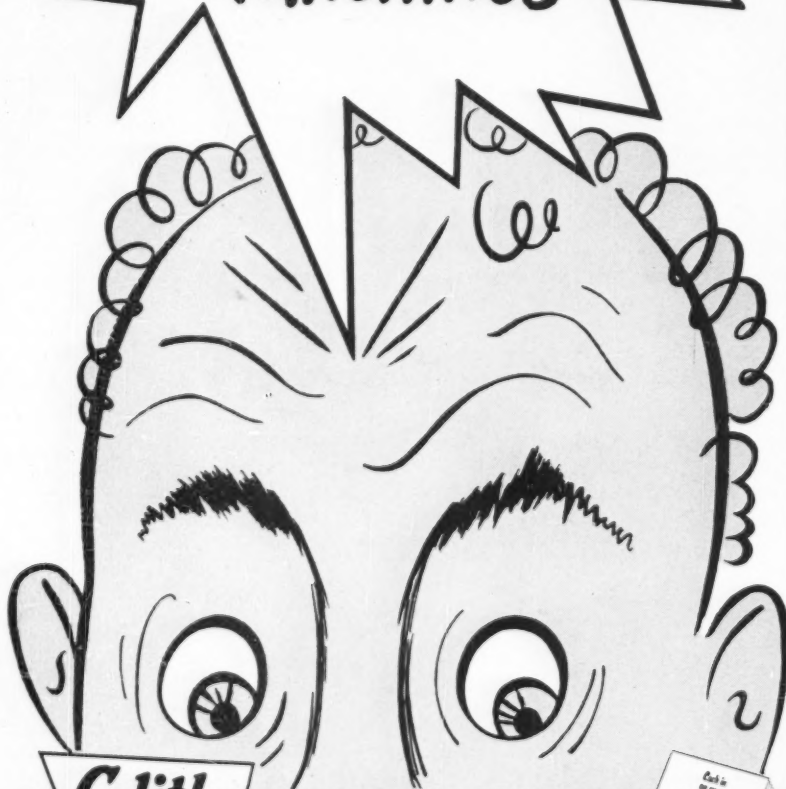


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to H-G, the sleeving can not be stretched under tension, and holds its tubular shape even when it serves as a container for bulk materials. First application is in a new toaster, where the tubing is filled with glass wool and acts as a mandrel around which the heating element is wrapped.

Carbon blocks and sheets that are 75 per cent air, yet are said to retain high electrical conductivity, resistance to chemical attack, and stability at high temperatures, are offered by Stackpole Carbon Company, St. Marys, Pa. Suggested for use as filter plates and, when impregnated, for machined parts, this unusually fine-grained material can be supplied in thicknesses up to an inch-and-a-half.

Solution ceramics is the name Armour Research Foundation gives ceramic coatings applied by a new process now offered for licensing. Great claims are made for these coatings. ARF says they contain no bonding agent and need be heated to only a few hundred degrees fahrenheit; yet they are not brittle, will stand high temperatures, and can protect base materials against attack by molten metals and viscous liquids (though not by vapors or thin liquids). Suggested applications range from insulation of electrical conductors to protection of engine cylinders.

Designed for breakage are the products of Frangible Discs, Inc., Penns Grove, N. J. The company makes metal diaphragms that are engineered to burst at almost any desired pressure from two to 50,000

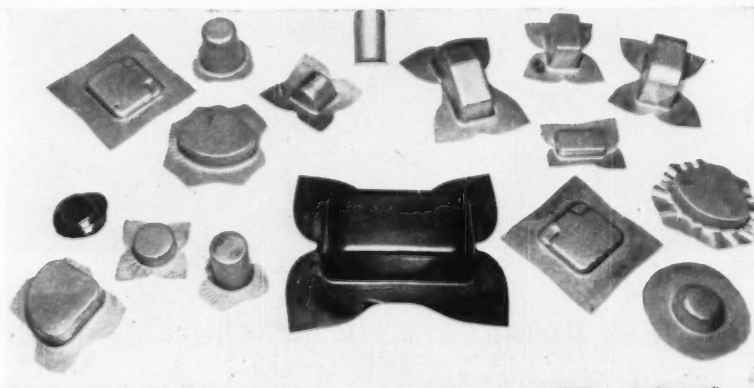
pounds per square inch. Major use is in pressure systems and pressurized equipment like autoclaves, where a protective blow-out device is required. The discs can be made of lead, aluminum, copper, nickel, silver, and other pure metals, and can be plain or Teflon-coated.

Plastics, paints, and primers are among the products which may benefit from a petroleum chemical just announced by Standard Oil Development Company. Based on butadiene, the new chemical, known as *C-Oil*, is an almost-colorless resin that is said to give paints greater resistance to scratching, and to make metal primers more adherent. Hard, glasslike plastics can be produced from it, Standard Oil researchers say, and its electrical properties are most attractive.

Vulcanizable silicone rubber is now being made by Dow Corning Corporation. The company says it is compatible with such organic rubbers as GR-S and Buna-N, and can be used as a protective coating for them, or blended with them to extend their serviceable temperature limits and improve resistance to hot oil, ozone, and weathering.

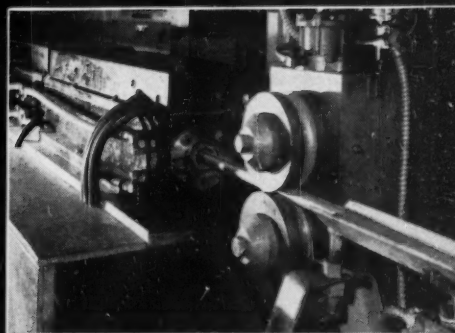
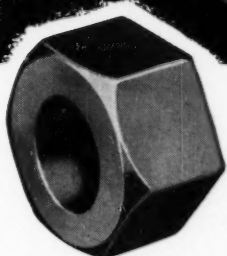
Light-stable polystyrene, for lighting fixtures, optical equipment, faces for instrument dials, and the like, is announced by Dow Chemical Company, Midland, Mich. It claims the new formulation, *Styron 647*, has eight to ten times the resistance to yellowing of ordinary polystyrene, yet retains all of the plastic's characteristic physical and chemical properties.

Continued on page 82



Titanium metal is deep-drawn by Brooks & Perkins to form shapes like these in a single operation. B&P, which has long specialized in deep-drawing magnesium, applies this know-how to titanium, reports surprisingly good results. Parts shown here range up to a foot wide, five inches deep.

4200 Nut Blanks Per Hour



Feed rolls push barstock through TOCCO Induction Coils to heat stock to 2350°F for forging.

with TOCCO* Induction Heating

FASTER PRODUCTION—4200 nut blanks per hour—twice the output of a conventional hot punching machine—that's the result of Lamson & Sessions Company's new automatic production set up with TOCCO Induction Heating.

OTHER ADVANTAGES—TOCCO delivers exact temperatures (2350°F, plus or minus 25°) and delivers them so fast that scale has little time to form. Scale loss has been reduced to only about 1% for hot-rolled stock. TOCCO is clean and cool, fits right into the production line—no hauling to and from the heat-treat department—no unpleasant radiant heat to annoy workers.

HERE'S HOW IT WORKS—Steel bars up to 1½" diameter are fed through TOCCO Induction Coils. The first two coils, operating off a 300 kw, three kc TOCCO motor-generator set, preheat the rod. The third

coil which operates from a TOCCO 250 kw 10 kc generator then boosts the rod to forging temperature. The hot rod then is fed to the special hot nut former (designed and built by NATIONAL MACHINERY CO.) which shears the rod to suitable lengths, forms the part and spits out the nut blank—ready for tapping.

In your search to find sound methods of increasing production, improving products and lowering costs, don't overlook TOCCO Induction Heating. If your products require heat treating, soldering, brazing or forging, it will pay you to investigate TOCCO for better, faster ways of producing them at lower unit costs.

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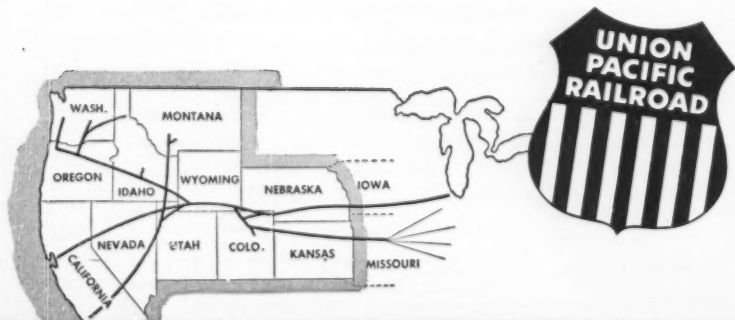
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—Reprinted from
Investographs, Rochester, N. Y.

The quotation above refers to the territory served by Union Pacific as shown in the map. If you are interested in a western industrial site for manufacturing, assembly, warehousing, distribution, or other purpose, we suggest contacting either your nearest Union Pacific representative or Industrial Properties Department, Union Pacific Railroad, Room 342, Omaha 2, Nebr. Complete and confidential information gladly furnished.



UNION PACIFIC RAILROAD

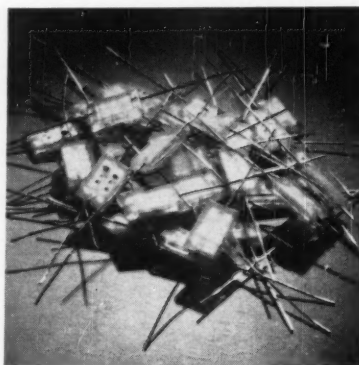
Midgets that do a mammoth's work

Space is at a premium in electronic equipment, just as it is in so many products these days. Every fraction of an inch counts. So, producers of electronic components are hard at work making their products smaller and more effective.

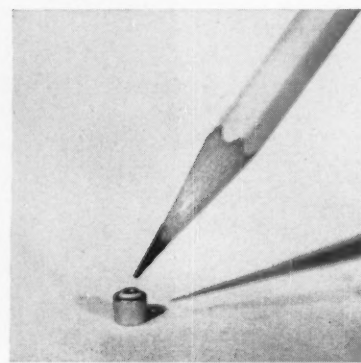
Many of the techniques these companies are developing—and many of the miniaturized products—should prove useful far beyond their original applications. They pave the way for smaller, more reliable equipment of many kinds—

office machines, welding equipment, materials-handling devices, and the like (see January, page 54, and March, page 48).

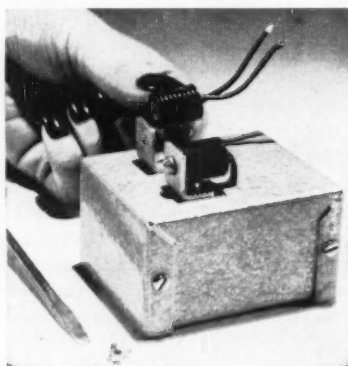
Ford Instrument Company, for example, first made precision cams like those pictured below specifically for use in computers. Now, the company is ready to supply "packaged" instruments and actuating mechanisms for remote control and automation of many different industrial processes, as well as for use in military equipment.



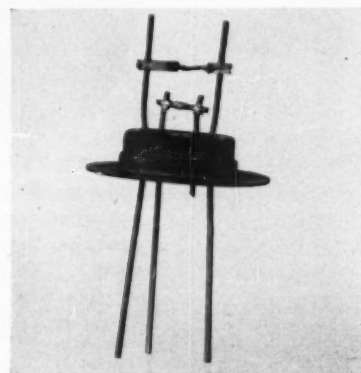
High-quality miniature glass capacitors are now mass-produced by Corning to replace mica units.



Subminiature thermal switch, by MiniTec, can be used for telemetering, control of solenoids, motors.



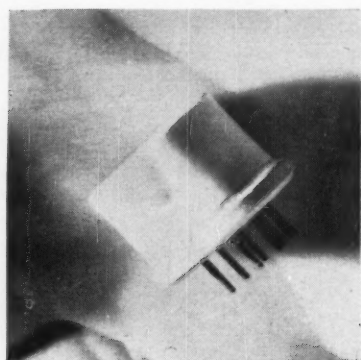
Ribbed surface, special mounting, help keep Westinghouse power transistor cool, permit one-watt rating.



Simplicity of design keynotes GE transistor. Germanium element is made by "rate-growing" process.



Tiny precision cams are produced by Ford Instrument for computers and many other types of equipment.



Electron tubes are shrinking too. Ceramic-encased Sylvania "stacked tube" is almost transistor-sized.

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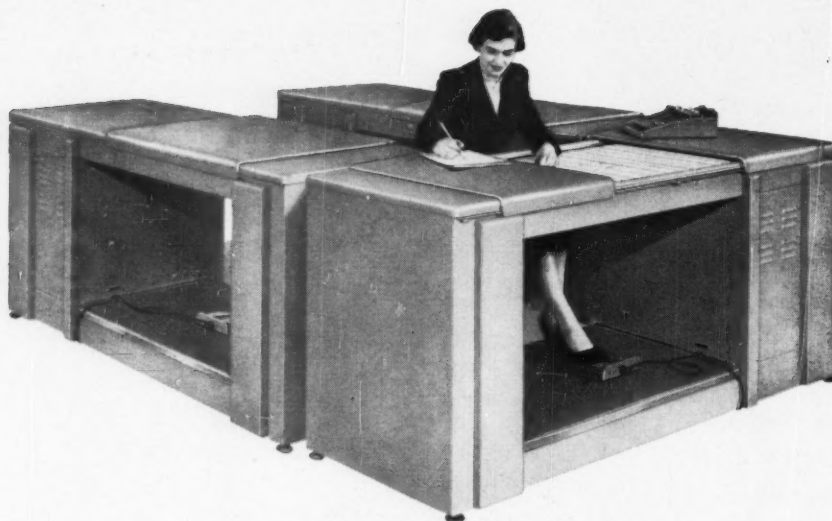
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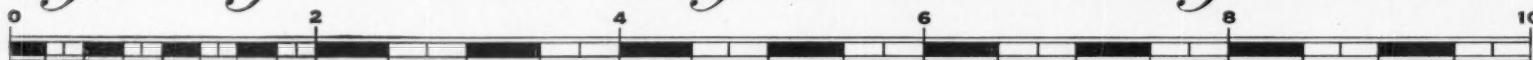
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FORMERLY this required a lot of clerks (and space). The clerks spent 58% of their time filing, checking and pulling the cards, nearly half of which time was consumed in a constant flow of traffic walking to and from the file cabinets, locating the proper drawers, and opening and closing them!



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Remington Rand



Management men by title, these supervisors are among scores who school selves in management skills in NAF's Dayton seminars.

NAF TRAINS MEN FOR MANAGEMENT

At 29, the national organization for industrial supervisors proves it has come of age. Here's how members train themselves for greater company responsibility.

ALFRED G. LARKE

Employer Relations Editor

"I'M A hard-working foreman and willing to burn the midnight oil. How do I get to be plant manager?"

The member who directed this inquiry to the home office of the National Association of Foremen in Dayton, Ohio, may have been a little more naïve than the average. But perhaps not.

Certainly his broad question reveals accurately what is in the back of the minds of the 62,000 members of the Association—how to get ahead *in management* in the 1,500 plants in which they are employed.

Eleven thousand of them attended one-, two-, and three-day area conferences in the first nine months of this year in order to learn how to do their jobs better, through workshops, problem conferences, talks by industry executives.

Two thousand, attending the Association's recent annual convention, spent only their mornings on business and talks, and devoted afternoons to learn-how conferences and workshops.

Every month or two, 25 to 30 spend a week at headquarters in Dayton, attending a tight-packed "unity seminar" on communications, economics, labor relations, legislation, general management problems.

And most of the rest of the members take part during the year in local institutes, training or educational programs conducted by their local clubs with NAF assistance.

To qualify for affiliation with the National Association of Foremen, in fact, a foremen's club must demonstrate that 75 per cent of its program is educational. The ruling is policed. Too much emphasis on beer and picnics, on beef-steak dinners and floorshows, and the area manager or a director drops in to see how the club can be got back on the track.

For industry, this beehive of supervisory development has unique value—while it is traveling along the same road with top management, it is not a company program, but the supervisors' own. "An ill-favored thing, sir, but mine own," said Shakespeare's Touchstone, pointing up the special appeal of personal possession. And when, as in the case of the NAF, the thing is not ill-favored, but has prestige, it adds a psychological pull to training that an out-and-out company-sponsored program would find it hard to duplicate.

A good many companies already appreciate this fact and contribute generously to the fur-

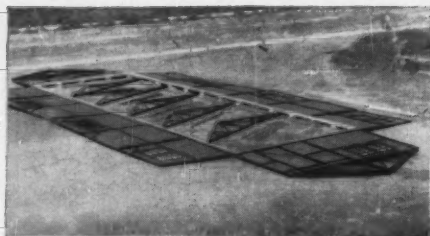
thering of the Association. Some pay the annual dues of \$4 per member for all or part of their supervisors who belong to NAF. Last year 55 companies contributed \$25,000 for company memberships—a form of membership for which there is no set fee, except what the company thinks the program is worth.

Even more impressive is the considerable number of elected officers and directors of NAF who are maintained on their employers' payrolls at full salary while spending full time on NAF business. Such, for example, is Marion N. Kershner, unpaid president of the NAF, who has been on paid leave from his job as supervisor of order planning for Armco Steel Corporation, Middletown, Ohio, since his appointment as acting executive vice-president last June.

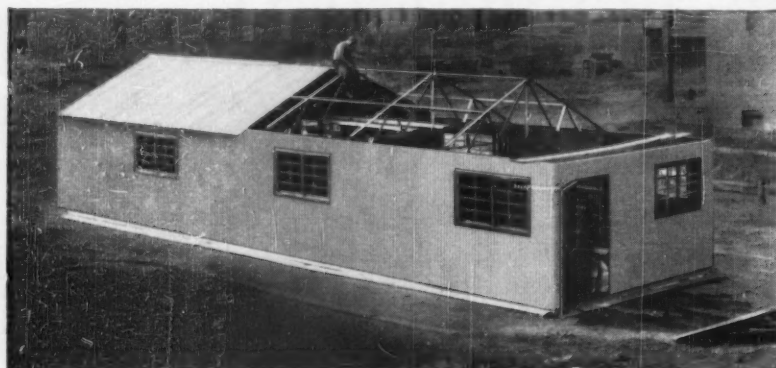
So, too, was his presidential predecessor, the late Edward O. Seits, executive assistant to the vice-president in charge of production at North American Aviation, Inc., as well as NAF president until his death this Summer. There are perhaps a half-dozen more in similar status.

The Association is no ghost organization, depending upon borrowed manpower to keep its affairs moving. With an annual budget of well

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over a quarter-million dollars, it has a full-time paid staff of 28, headed by an executive vice-president. It is a comment on the organizational maturity and stability of the NAF, incidentally, that it has been continuing to grow, and operating without a hitch for several months, while the executive committee scours the countryside in search of a permanent executive vice-president.

The paid organization also includes what is essentially a research post, executive director of the Management Development Division; a service director, the Manager of Club Service and Promotion; and five Area Managers headquartered in Dayton, Ohio; Pittsburgh, Pa.; St. Louis, Mo.; Los Angeles, Cal.; and Chicago, Ill.

Others are the manager of public relations and editor of the official journal, *Manage*; staff secretary; and the usual complement of head-office staff employees.

Parallel to the paid staff is an elected National Board of Directors of 97 members, who meet three times annually. They are chosen, somewhat like Congressmen-at-large, on a state basis, their number determined by the number of clubs in a state. The board, at the annual convention, elects a president, general vice-president, secretary-treasurer, and nine zonal vice-presidents;

this group is the between-sessions executive committee.

Many of the national board members are well up in middle management, or higher. For one thing, the National Association of Foremen does not limit its membership to front-line foremen. Sixty-five per cent of present members are of that rank; the remainder range up through middle management to staff heads, superintendents, factory managers, and executives.

The term "foreman" is, in fact, apparently on the way out of the industrial vocabulary. Ten years ago, 70 per cent of NAF members said they were foremen. This year, a check showed only 16 per cent have that title, even though approximately two-thirds are first-line management representatives, dealing directly with the production workers. The bulk of members hold the title "supervisor."

Probably for the same reason that they have risen through management ranks, a goodly percentage of the directors of NAF are men from some point in the industrial hierarchy higher than first-line foremen. There remain a substantial number, however, who are directly representative of the majority of the on-the-floor, in-the-mill supervisors. "Bottom-level" management men to-day, they are by their own estimation—and 29 years' history

NAF Services to Members, Management

Here in summary are the services NAF offers to its members and, through them, to industry:

- **TRAINING**—Week-long "unity seminars" at Dayton in a wide range of management subjects; "code of ethics" conferences in clubs' own localities, in which NAF code is used as a supervisory-development outline; source material for local training programs and institutes; local training in conference leadership.
- **CLUB AIDS**—Manual for club officers on how to make their organizations useful, interesting; public-relations guide for clubs; speakers' service, including minimum of two outside speakers annually; program aids such as lists of available movies, sound-slidefilms; physical equipment like uniform minute-books.
- **CONSULTATION**—Advice by mail to individual members on any problem; to affiliated companies, especially small ones; backed by access to management of 1,500 companies.
- **LITERATURE**—Monthly *Manage* magazine, an official organ which concentrates on general-interest and educational material rather than routine club news; testing materials for selection and placement; a free mail-order travelling library of management books.
- **CONFERENCES**—National convention workshops, problem-solving conferences; one-day regional conferences of like nature.



STAPLING SAVES 66%, STOPS SAG! You're looking at a big-selling feature of a well-known storm-and-screen door. It's the strong, continuous hinge secured by staples to aluminum frames. Until recently, self-tapping screws held three 3-inch hinges. In time, screws worked loose. Doors sagged.

A Bostitch Economy Man saw a way to improve this method—using metal-piercing, rust-proofed staples and longer, stronger hinges. Now, Bostitch Metal Stitching saves manufacturer *two-thirds* in fastening costs, offsets extra cost of better hinge. The improved doors work better, last longer.

How much can you save by swinging over to Bostitch stapling?

Your Bostitch Economy Man can tell you—objectively and honestly. He's one of 350 trained fastening specialists working out of 123 cities in the U. S. and Canada. There are over 800 kinds of Bostitch staplers in his cost-cutting repertoire. Look up "Bostitch" in your telephone directory or check the coupon at the right.

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- ☐ stapling vs. spot welding
- ☐ stapling vs. screws or bolts
- ☐ stapling vs. glue or cement
- ☐ stapling vs. tape
- ☐ stapling vs. tacks or nails
- ☐ stapling vs. solder
- ☐ stapling vs. wire or string

PACKAGING and CARDING

- ☐ sealing bags (cloth, paper or plastic)
- ☐ mounting products on display cards
- ☐ fastening items to individual cards

SHIPPING ROOM ECONOMIES

- ☐ preparing cartons for filling
- ☐ sealing filled cartons
- ☐ lining or padding crates
- ☐ applying shipping bills or tags

BUILDING APPLICATIONS

- ☐ applying asphalt roofing
- ☐ laying underfelt
- ☐ installing ceiling tile
- ☐ applying insulation
- ☐ installing low-voltage wiring
- ☐ applying shake shingle siding

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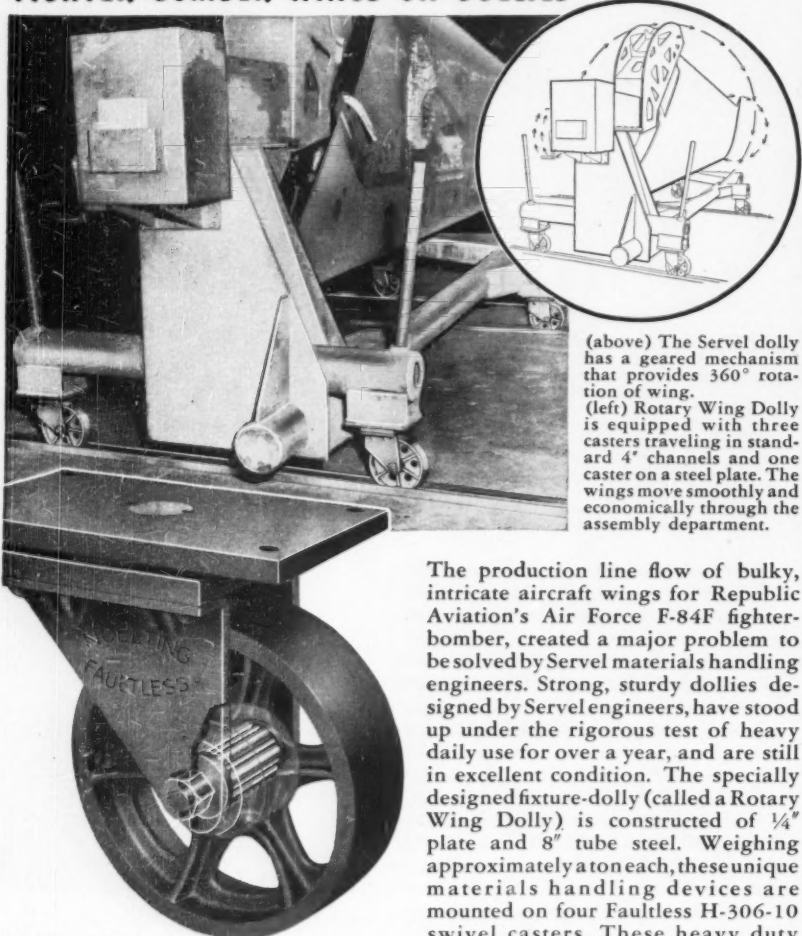
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Faultless FACTS

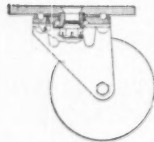
**SERVEL, INC., ASSEMBLES REPUBLIC
FIGHTER-BOMBER WINGS ON DOLLIES**



(above) The Servel dolly has a geared mechanism that provides 360° rotation of wing.
(left) Rotary Wing Dolly is equipped with three casters traveling in standard 4" channels and one caster on a steel plate. The wings move smoothly and economically through the assembly department.

The production line flow of bulky, intricate aircraft wings for Republic Aviation's Air Force F-84F fighter-bomber, created a major problem to be solved by Servel materials handling engineers. Strong, sturdy dollies designed by Servel engineers, have stood up under the rigorous test of heavy daily use for over a year, and are still in excellent condition. The specially designed fixture-dolly (called a Rotary Wing Dolly) is constructed of 1/4" plate and 8" tube steel. Weighing approximately a ton each, these unique materials handling devices are mounted on four Faultless H-306-10 swivel casters. These heavy duty industrial casters are equipped with roller bearings in the wheel hub and two rows of balls for the swivel bearings. A 3/8" thick top plate and 1/4" heavily corrugated side members add extra strength.

We can help solve your caster problems, as we have for Servel, Inc. Each month the solution to a real materials handling problem is fully presented in a free, handy size folder. To get the complete story on the Servel caster application mentioned above, simply call your local Faultless Caster Distributor listed in the yellow pages of your phone directory. Or write us today.



SERIES H300

This husky caster is scientifically strengthened at the right places to carry heavy loads. Its unflinching performance is due to easily lubricated Double Ball Bearing Swivel and a combination of other well balanced features.

SERIES H700

Solidly built of heavy gauge steel plate, with horn reinforced by deep drawn ribs. Large size bolt and nut axle. Fully capable of handling the same loads as H300 Swivel-type Caster, in corresponding sizes.



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JOBS**

of NAF directors bears them out—the middle-management men of to-morrow.

Sentiment—and an inability to find a more suitable word—have persuaded the organization to keep the word "Foremen" in its title, but a bow to present practise is made in the phrase that always appears along with the name National Association of Foremen—"Management Men of America."

Industry Gains From NAF

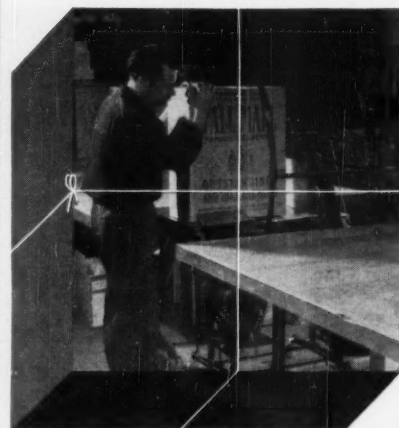
What industry gets out of the NAF bulks large against what it contributes; in fact, dwarfs the whole quarter-million-dollar annual budget of the national organization. The NAF club at the Fort Worth, Tex., plant of Consolidated Vultee Aircraft Corporation, for instance, spearheaded a materials-conservation program in 1952 which was credited with saving the company \$1,208,228. That was the year that Cecil McClure, Convair supervisor of conservation, was club president.

Use of masking, industrial, and kraft tapes was cut 70 per cent for a saving of \$108,272. One Convair office supervisor ran a desk-to-desk survey that turned up \$3,000 worth of superfluous stationery and office equipment; company-wide, cost of office supplies was chopped from \$5,355 to \$2,132 a day.

The Convair Management Club at San Diego, 2,000 members strong, set up a cost-improvement proposal program, brought in 1,219 recommendations the first year as a result of which, 467 being adopted, a saving of \$969,126 and 515,060 man-hours was made. Another \$711,860 in savings was marked for adoption as soon as mechanically possible.

An NAF club in a Southern woodworking plant took on the problem of safety—fourteen fingers had been cut off in thirteen months in the process of slicing veneer sheets. An accident frequency rate of 55 was reduced in five years to 1.4 (although the industry average was 31), and not even a fingernail was clipped.

Howard A. Fitch, Jr., president of Kansas City Structural Steel Company, can't put a price on it, but he knows he's saved thousands yearly by a manual his supervisors' NAF club worked up, which permits estimating a new job in a few minutes instead of a couple of days, as was necessary when figuring was done



TIE IT WITH A BUNN PACKAGE TYING MACHINE AND SAVE

Any product which can be tied by hand can be tied with a Bunn Package Tying Machine . . . 5 times faster, more uniformly and economically.

Bunn Tying Machines break bottlenecks in all departments where loose material must be fastened together. Packaging overtime is eliminated. Labor turnover is reduced because machine tying is preferred by employees over tedious hand tying.

Your product is tied securely every time. You have 4 different wraps to choose from. The knot is slip-proof. It cannot be duplicated by hand. The Bunn Machine adjusts automatically to any size or shape of package . . . uses minimum twine.

The machine is mobile . . . works on 110 volt AC current . . . is perfectly safe . . . requires no training. Service representatives from coast to coast.

BUNN

B. H. Bunn Co., Dept DR-11
7605 Vincennes Avenue, Chicago 20, Illinois

GET THE WHOLE STORY

Send today for this fact-packed tell-all booklet which illustrates the many advantages of this machine. There is no obligation.

MAIL THIS COUPON NOW

B. H. Bunn Co., Dept. DR-11
7605 Vincennes Ave., Chicago 20, Ill.

Please send me a copy of your free booklet describing the many advantages of your tying machine.

Name _____

Company _____

Address _____

City _____ Zone _____ State _____



Millions for tenpennies!

Here's how commercial banking contributes to the world's biggest output of hardware.

In 1953, for American craftsmen—amateur as well as professional—the hardware industry produced some 1,680,000,000 pounds of nails.

But that's only one small item in the annual production of our great hardware industry!

Last year's total outlay for hardware came to a cool \$2,698,000,000! With this figure in mind it's as obvious as a hammer-hit thumb that somebody had to put an awful lot of cash on the keg head to keep production ahead of demand.

That somebody is very often a banker, and here's the story.

Bankers step in when needed

Big hardware manufacturers often get along very well by ploughing part of

last year's profits back into this year's production. But big or small, most manufacturers find it's often convenient or more practical to supplement working capital for the financing of seasonal needs. At such times they turn to banks.

Banks in action

Commercial banks with their short-term loans help hardware manufacturers stock up on raw materials. Bank loans provide cash for the heavy costs of expanded production and marketing. In your own community they frequently help *your* dealer increase his inventories to meet peak season demands. And they may even help *you* finance the bench saw, drill press or power lathe you want for your own home workshop.

How come?

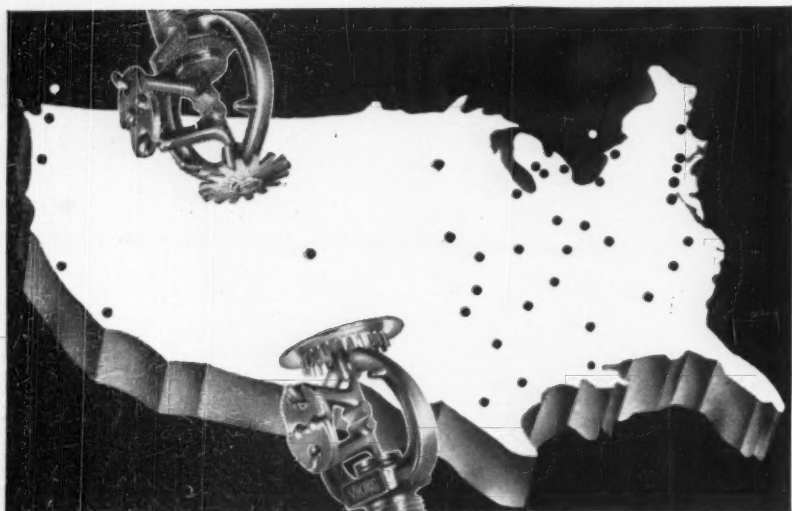
What banks do for the hardware in-

dustry is somewhat similar to what bees do for sweet clover. They bring on the necessary ingredients for growth because it's their job in the scheme of things. Banks exist to put money to work. It's as simple as that. This money . . . by and large the money you invest and deposit . . . also puts men and women to work. The fruits of its labor are a higher standard of living and a wider opportunity to share in the greatest abundance of goods and services the world has ever known.

The Chase National Bank, first in loans to American industry, is proud of banking's contribution to the progress of our country.

• • •

The CHASE National Bank
OF THE CITY OF NEW YORK
(Member Federal Deposit Insurance Corporation)



VIKING

SPRINKLER PROTECTION

**is within your reach
anyplace in the U.S.A.**

Your VIKING MAN is a good man to know. He is within your "six-minute" reach, or "six-hour" reach at the most — any place in the U.S.A. Your VIKING MAN is an engineer, an informed consultant, who will understand and solve your fire protection problems — for the maximum fire protection efficiency at the minimum installation and maintenance cost. Your VIKING MAN can save you money.

Fires defeat progress. You

can eliminate the fear of fire losses by taking advantage of VIKING AUTOMATIC SPRINKLER PROTECTION. From Maine to California, and from Florida to Washington, industries, businesses and institutions have chosen VIKING installations.

Your VIKING MAN will make a complete survey of the situation, and recommend the installation best suited, without obligation to you. He is as near to you as your telephone.

THE VIKING CORPORATION Hastings, Michigan

I want more information about VIKING Sprinkler protection.

Company

Address

By..... Title.....

Write today for your copy of
"Fire and Your Business"



the **VIKING**
corporation
HASTINGS, MICHIGAN

on a custom basis, as in the past.

E. W. Emery, president of Chicago Rawhide Company, credits the NAF club with training the competent management team needed to meet a 400 per cent expansion in the last eight years.

One NAF club—at Grayson Controls, a division of Robertshaw-Fulton Controls, Lynwood, Cal.—has done its homework on employee relations so well that the foremen there have conducted all the contract negotiations with the union since 1948, and have never had a strike in that time. "They do a much better job of it than any of our so-called hot-shot experts, including myself, have done in the past," says Tom T. Arden, executive vice-president. Here are supervisors who are obviously management men, without any quibbling.

Central Bank of Ideas

Foremen's clubs not affiliated with the NAF have, of course, done jobs as good as these, though perhaps not as unusual as the performance of the Lynwood group. But in most cases they are clubs in big companies, with the will, the manpower, and the money to build good clubs; and chances are they have cost more effort than would similar achievements made through the tested routine procedures of a centralized organization like NAF.

For, current membership and activities indicate, the NAF is an organization that has reached critical mass, as a nuclear physicist might say; has passed its turning point, in an older phrase.

Starting as the Dayton Foreman's Club in 1921, it became an Ohio federation in 1923 and, in 1925, a national group. But at the start of World War II its membership was something under 6,000; its aims and ideals were as now, but its resources were limited. By 1946, it had 17,000 members; to-day it has 62,000 and is expanding at about 5,000 members a year.

Still maintaining a fraternal aspect, because its members *belong* to it (meaning *it belongs to them*), it has passed beyond that phase to become a well-rationalized service organization, serving management as it serves its members because of its insistence, for 29 years, that supervisors *are* management.

An early fear that *any* organization of foremen might lend itself

5 movements in one
numbering
machine

**FORCE
5 Action**

One machine fills scores of numbering needs . . . provides consecutive, duplicate, triplicate, quadruplicate or repeat numbering at the flick of a finger.



Write for prices and catalog.

WM. A. FORCE

A COMPANY, INCORPORATED
216 NICHOLS AVENUE, BROOKLYN 5, N. Y.

**50,000 FIRMS
SPECIFY
SPEED SWEEP**



**Sweeps faster, cleaner,
Outlasts Ordinary Brushes 3 to 1!**

WRITE FOR STYLES, SIZES AND PRICES TODAY

Milwaukee Dustless Brush Co.

530 N. 22ND ST., MILWAUKEE 3, WIS.

to manipulation and become a collective bargaining agency seems to have evaporated in the light of almost a third of a century's experience of NAF as a management training school. While it has been in existence, a foremen's union movement has risen and declined without raising a ripple of interest among NAF member clubs: No club has had to be dropped for a move toward unionism, because none has moved in that direction. A long line of NAF members who have climbed from front-line foremanship to NAF leadership, to middle management, and indeed to presidencies and board chairmanships, has added proof of the organization's main compass point.

Companies Ask, Too

Through the NAF's consultation service, conducted by Dr. William Levy, executive director of the Management Development Division, many small companies have come to depend on the NAF for aid on tough problems as much as their foremen have, and a not insignificant number of large companies have profited from the service, too.

A General Electric Company drafting room supervisor asked, and got, NAF aid in devising a system of budgeting draftsmen's time. A Lockheed toolroom man turned to NAF, in the early days of cemented carbide cutting tools, for advice on a tool-control program, and got it. He is, incidentally, now NAF's Pacific Coast area manager.

Dr. Levy has not only the Association's library and other research material to call upon, but the managements of some 1,500 companies as sources of information.

Other NAF aids to men and management are the unpaid, full-time directors, and a staff of five paid area managers under Raymond F. Monsalvatge, manager of Club Service and Promotion, and Editor Dean Sims' broad-interest, service publication, *Manage*, NAF's official organ. Escaping official-organ deadlines, it demonstrates there are cases where a shotgun gets more birds than a rifle, erring neither in overloading its pages with dull routine local news nor in trying to hammer home official policy with a battering ram.

THE END

MARSH & McLENNAN INCORPORATED

Insurance Brokers

CONSULTING ACTUARIES
AVERAGE ADJUSTERS

Chicago New York San Francisco Minneapolis Detroit Boston Los Angeles
Toronto Pittsburgh Seattle Vancouver St. Louis Indianapolis Montreal
St. Paul Duluth Portland Buffalo Atlanta Calgary Washington
Tulsa New Orleans Phoenix Milwaukee Cleveland Havana London

No material has everything...but

ADD UP ALL YOU GET with DUREZ PHENOLICS

(A WELL-KNOWN EXAMPLE)



If your experience is like that of others in many fields of industry, you will find this on inquiring into Durez Phenolics:

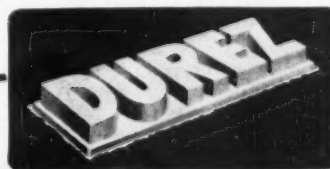
They offer the many properties available in alternate materials, and generally a plus factor that's especially desirable for the application in hand.

Thus in the adding machine case: dimensional stability for accurate fit, light weight for user convenience, comes from the press ready for assembly—and then the *plus*, a sound-deaden-

ing effect inherent in the raw material.

Constantly improved by Durez research, the phenolics are perhaps more than ever the "hard-wear" plastics. They range from glass-fiber-filled to rubber-filled compounds, and with their valuable chemical and electrical properties, they invite profitable investigation for hundreds of applications.

We'll gladly bring to your problem our experience of 33 years as specialists in the phenolics. Ask, too, for our illustrated monthly "Plastics News." Durez Plastics & Chemicals, Inc., 1911 Walck Road, North Tonawanda, New York.



MOLDING COMPOUNDS. Structural, electrical, and chemical properties in many combinations.

**PHENOLIC
PLASTICS**
for the new
Competitive Era



RESINS FOR INDUSTRY. Bonding, casting, coating, laminating, impregnating, and shell molding.

Cut Costly Billing Time with

BURROUGHS *MIRACLE* **MULTIPLIER**



Computes and types the complete invoice in one continuous operation.

Two major steps are cut from costly billing operations when you use the Burroughs Miracle Multiplier Typewriter-Billing Machine that types and computes an invoice faster than it would ordinarily take to copy it!

In run-of-mine billing procedure, there are three major steps—(1) calculating, (2) typing and (3) machine checking. But this time-saving Burroughs Typewriter-Billing Machine reduces calculating and typing to one single, continuous

Computes by direct multiplication—not by repeated addition.

operation, and no machine checking is needed. Added speed factor—computation is by direct mechanical multiplication, not repeated addition.

Here is the world's fastest billing machine for a wide range of applications. When the time comes to better your billing operations, contact your Burroughs man. The Burroughs branch office nearest you is listed in the yellow pages of the telephone directory, or write direct to Burroughs Corporation, Detroit 32, Mich.

Prints quantity, then prints unit price and total amount simultaneously—no need for machine checking of quantities and price.

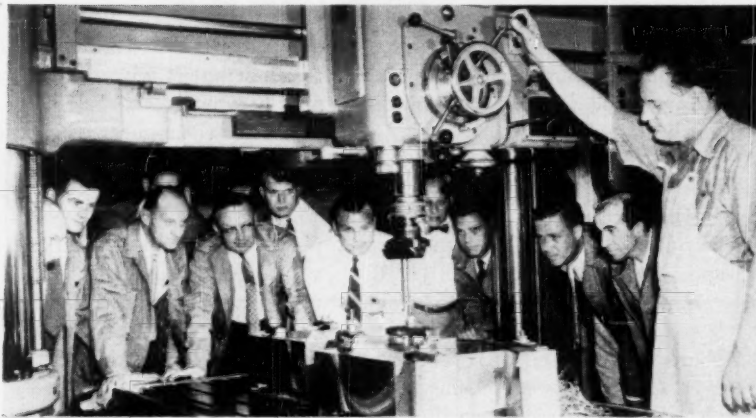
WHEREVER THERE'S BUSINESS THERE'S

Burroughs



SALES & DISTRIBUTION

Marketing notes and comments



A session on quality, application, sales methods keys the program . . .

How to sell WITH your Distributor PLUS—turning point of sales displays into sales, selling your customers' products, discount dealers have directory, con- sumer survey in your own plant, research is a gamble, impulse buying survey, market briefs.

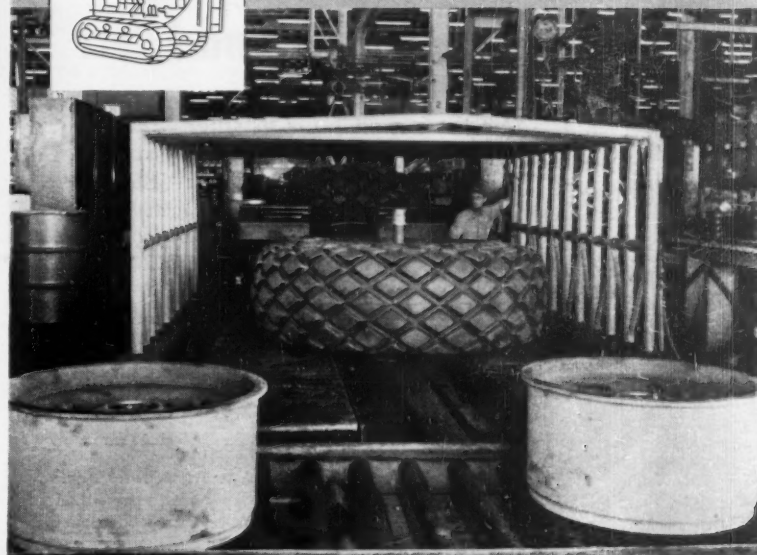
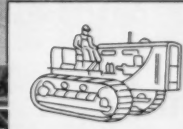
IF YOU sell through a distributor who handles other lines, the chances are you are missing a bet on your middleman. Too many companies rely on sound advertising and a quality product to move the merchandise off their distributors' shelves. They've got good ends and tackles but they are wide open in the center.

Standard Pressed Steel Company, of Jenkintown, Pa., does the bulk of its business through 350 large distributors but the smalls add up to about 2,000. Distributor salesmen do the final selling job on SPS products. The problem faced by SPS and many other companies was how to successfully compete for the

distributor's selling time in competition with other and different lines that he sells. Here are the key points of their program:

1. National distributor survey—conducted every two years; a personal depth survey used to spot and diagnose distributor attitudes.
2. National advertising program—emphasis on product application but with strong stress on distributor service.
3. Ads designed for use as selling tools by the distributor and aimed through his trade journal.
4. A new net pricing schedule to cut distributor time in handling inquiries and orders.
5. A vertical label design to speed

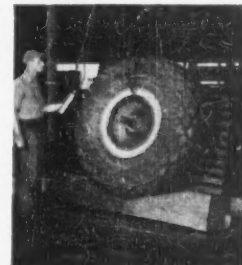
WHEREVER CATERPILLAR-BUILT PRODUCTS ARE MADE
YOU'LL FIND **MATHEWS CONVEYERS**



Wheel and tire assemblies are handled with Mathews Conveyers at Caterpillar Tractor Co.



Mathews Conveyor Company is glad to have an opportunity to salute the great Caterpillar organization, which is this year celebrating 50 consecutive years of continuous production of track-type tractors. The growth of that company has been a phenomenal one, and its product, the crawler tractor, is, in its 50th year, better and busier than ever before.



Mathews Conveyers were put to work by Caterpillar Tractor Co. nearly 30 years ago and today, as then, many of Caterpillar's world-famous products are handled with Mathews power and gravity conveyers and special conveying machinery.

We have slanted the August issue of our company publication, "What's New With Mathews," to Caterpillar progress. Copies of this are yours for the asking. Remember, too, that the service of your nearby Mathews engineer is available to you for the discussion of your handling problems.

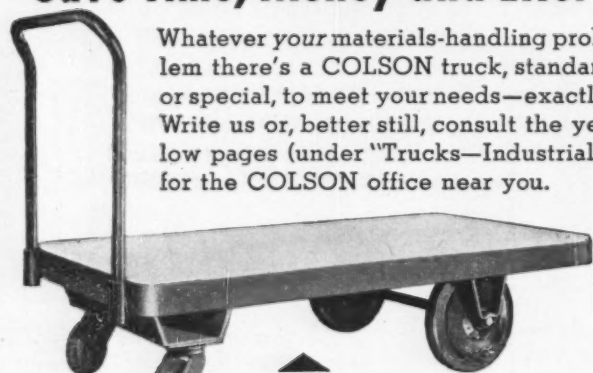


MATHEWS CONVEYERS

GENERAL OFFICES Mathews Conveyor Company
ELLWOOD CITY, PENNSYLVANIA
PACIFIC COAST DIVISION . Mathews Conveyor Company West Coast
SAN CARLOS, CALIFORNIA
CANADIAN DIVISION Mathews Conveyor Company, Ltd.
PORT HOPE, ONTARIO
ENGINEERING OFFICES OR SALES AGENCIES IN PRINCIPAL AMERICAN AND CANADIAN CITIES

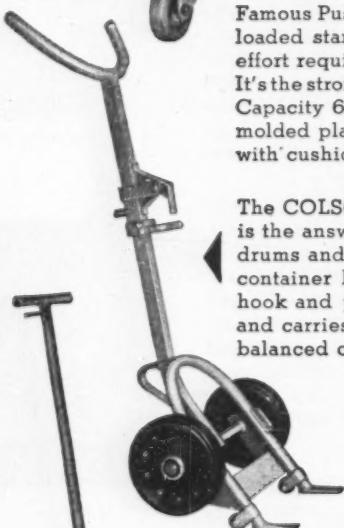


Save Time, Money and Effort



Whatever your materials-handling problem there's a COLSON truck, standard or special, to meet your needs—exactly. Write us or, better still, consult the yellow pages (under "Trucks—Industrial") for the COLSON office near you.

Famous Push-E-Z Platform Truck fully loaded starts and rolls with half the effort required by the average truck. It's the strongest hand truck ever built! Capacity 6000 pounds with metal or molded plastic wheels, 3000 pounds with cushion tread, rubber tires.



The COLSON Universal Drum Truck is the answer to fast safe handling of drums and barrels. It locks any size container between adjustable chimb hook and pick-up tips, lifts it easily and carries it with the weight evenly balanced over the wheels.



The COLSON Lift-Jack System easily doubles the efficiency of conventional hand trucks. Handling goods through production, in and out

of storage, on and off freight cars or trucks, it lets one man *easily* do the work of two!

THE COLSON CORPORATION ELYRIA, OHIO

Casters • Hand Trucks • Lift Jack Systems
Hydraulic, Electric and Mechanical Power Lifts and Transports

Mail Coupon Today

The Colson Corporation
Elyria, Ohio

Please send free booklet "Colson Materials-Handling Trucks"

Name _____

Company _____

Address _____

City _____ Zone _____ State _____

up stock picking and order assembly in distributors' warehouses.

6. A three-day factory training course for distributor salesmen.

7. A merchandising folder of ads to keep distributor posted.

8. A staff of sales engineers who troubleshoot customer problems and back up the distributor.

9. A policy of mentioning distributor's name always when orders or inquiries come into plant and giving standard commissions on direct orders.

10. Free direct mail for distributor use.

11. Direct mail to distributor to keep him in touch with product and progress.

12. A series of sales-tips booklets—pocket-size—that show what points to feature on each product.

13. Giveaways—key chains, sample kits, mechanical pencils, and so on.

14. Advertising aids—mats, electros, house-organ material and advertising-planning assistance.

15. Displays and materials for distributor-staged product shows.

That's the package. How many should be in your distributor program?

Nine ways to cash in on point-of-sale displays

If your product is displayed on the retail shelf you are facing increasing competition for shelf space. And survey after survey (see Du Pont item, page 98) shows that impulse buying accounts for the vast

majority of retail purchases. One way to keep your volume up is to improve your in-store displays. A note from the Gibraltar Corrugated Paper Company checks off nine points:

1. Call in your point-of-purchase supplier as early as possible when you develop a new marketing campaign. An effective display unit requires careful co-ordination between designers, advertising agency, sales personnel.

2. Get a supplier who knows your problem. There are hundreds of suppliers, most specialize in certain problems, certain types of displays. The Point-of-Purchase Advertising Institute in New York gives impartial advice. Pick several and ask them to submit ideas. Give them full information and take the best.

3. Train your salesmen to become merchandising men. They've got to carry the ball and sell the display to the retailer on the basis of its value to him. Some food companies prepare slidefilms with step-by-step instructions on how to put up the material and how to get the most impact from them.

4. Merchandise your display in other advertising media. If you relate it to your other advertising, the consumer is preconditioned.

5. Test your display before placing a large order. A field test in a few representative cities may save you a lot of money. You can pick up retailers' attitudes, too.

6. Underbuy, if anything. There is a psychological advantage in un-

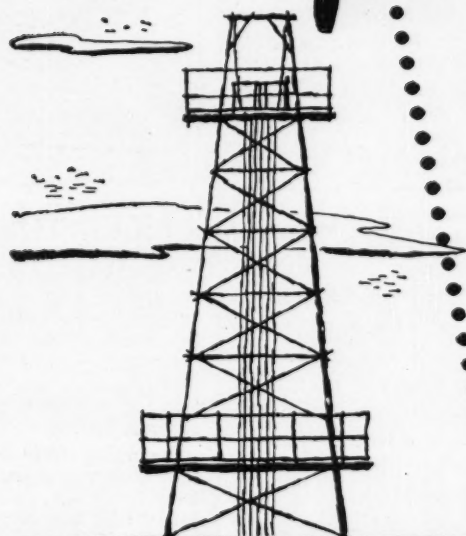


How to demonstrate heavy equipment in the office

You can't carry it in a case or on your back. Yet demonstrations get attention words and data can never command. Allis-Chalmers Manufacturing Company solved it by putting essential

components of its distribution transformer into a sales kit so that the quality of the whole can be shown in terms of its parts—on a desktop in the prospect's own office.

NO MUD IN YOUR EYE HERE!



Here's how Dracco application engineering ended a serious dust nuisance for a Texas company manufacturing drilling muds.

Used in oil well drilling operations for bit lubrication and hole sealing, drilling muds are produced from specially processed clays. Bagging of these clays created severe dust concentrations at two plants, exposing personnel to unhealthy conditions.

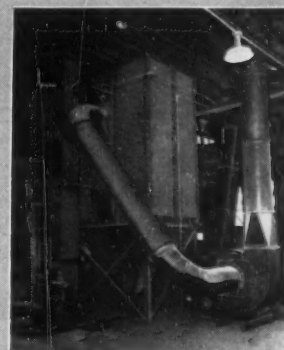
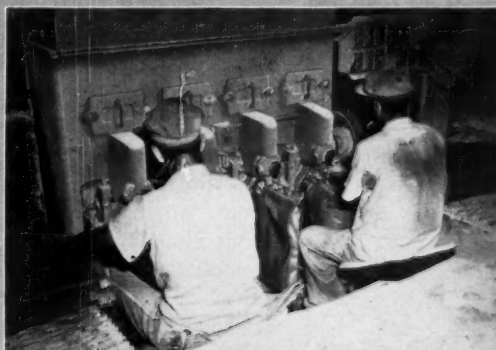
Dracco Multi-Bag Filters provided positive control of these dusts and brought immediate relief by eliminating all "dusty" mud.

Wherever Dracco Filters are put to work, they are constantly protecting plant efficiency . . . safeguarding workers' health . . . cutting housekeeping costs . . . reducing machine wear from abrasive dusts . . . or recovering valuable materials at collection efficiencies of 99½—100%.

If uncontrolled dust is muddying your profit picture, Dracco Filters can provide a proved method for solving your problem.

Men and machines (left photo) can now bag drilling mud materials at top efficiency in dust-free atmosphere.

Dracco Multi-Bag Filter (right photo) now controls nuisance dusts, assuring cleaner working conditions and higher production.



DRACCO CORPORATION
4044 East 116th Street • Cleveland 5, Ohio

DRACCO *Performance Proved*
Airstream CONVEYORS • DUST CONTROL EQUIPMENT



Dracco 40-page Bulletin 800 presents complete technical information on "Industrial Dust Control and Recovery". Write for your copy today.



Who buys how much Credit Insurance?

LARGE firms a little? Small firms a lot? Actually, there seems to be little or no correlation between mere size or type of a business and its Credit Insurance needs. Large firms as well as small require the assurance that working capital will at all times be kept working, will not be lost or tied up indefinitely in Receivables. For example, we cite the following list of single premiums paid by some of American Credit's larger policyholders!

POLICYHOLDERS' BUSINESS	ANNUAL PREMIUM
Steel.....	\$ 17,815.77
Plywood.....	\$ 20,515.79
Automotive Parts and Accessories.....	\$ 20,936.62
Wool Tops.....	\$ 21,734.49
Heating Appliances.....	\$ 25,082.87
Worsted.....	\$ 26,285.09
Newsprint, Pulp and Insulation Board.....	\$ 28,251.50
Radios, TV Sets, Healers.....	\$ 32,026.00
Pressed and Blown Glassware.....	\$ 36,669.66
Television and Radio Equipment.....	\$ 40,761.35
Air Conditioning Units.....	\$ 48,606.84
Electrical Appliances, Aircraft Parts.....	\$ 49,668.36
Textile.....	\$ 61,506.04
Air Conditioning Equipment.....	\$102,536.28

Whether your business is large or small we'd like you to know more about American Credit Insurance. May we send you a booklet? Please write Department 50, First National Bank Building, Baltimore 2, Maryland. You can be sure if Accounts Receivable are insured with...

**American Credit
Indemnity Company**
of New York

derstocking. It puts availability at a premium, ups display's value in thinking of salesmen and retailers.

7. Keep floor-stand art work simple. Don't let your display unit detract from the appearance of your product or package. A leading bread company designed a self-service merchandising unit that was on the same design as the product. You couldn't distinguish between them and the display didn't sell bread. Redesigned into a simple white stand featuring the manufacturer's logotype and nothing else, the bread package suddenly emerged from obscurity and sales jumped.

8. Make construction so simple that a child could put it up. The less a dealer has to do, the more he appreciates you. Your salesmen will make more calls too.

9. Look into double-duty merchandising displays. If you can help the dealer sell two products instead of one, he'll be happier to put up your floor stand. You can design a display to help sell a logically related product along with yours. You can even do it with copy alone. In a Summer beer display unit, for example, a panel suggested that the buyer remember to pick up paper plates, napkins, potato chips, and so on.

Marketing Briefs

• **Build your consumers' sales.** Taking a tip from the textile industry, which has promoted customers' products for years, United States Steel is in the middle of a promotion campaign designed to sell white goods. Later this month, the company's TV network show (*U. S. Steel Hour*) will send off three "White Christmas" commer-



Control on the package

Supreme Products, Inc., Chicago, Ill., puts numbers from one to ten on its chuck key carton. Numbers crossed out as each key is used show how many keys remain, clue to reorder.



I NEED THESE COPIES TONIGHT, MISS JONES

With a Peerless DRI-STAT photocopier, other executives in several different places can put this information to work immediately. And Miss Jones won't be late for her date, nor the boss stuck for overtime.

Incoming rush orders, complicated specifications, urgent "trouble" reports from the field... whatever the original, DRI-STAT will copy it exactly... no proof-reading needed... in less than a minute, for about 10 cents per page. Originals in colored ink, on opaque paper, printed on both sides... DRI-STAT will make clear, sharp black-and-white copies of them all.

Ask your Peerless distributor to show you how DRI-STAT can cut your copying costs and pay for itself, quickly. Call him for a demonstration, or mail the coupon.

**PEERLESS
DRI-STAT**



PEERLESS PHOTO PRODUCTS, INC.
Shoreham, L. I., New York DR-11

- ☐ I'd like to see a demonstration of DRI-STAT on my work.
☐ Please send me your free brochure describing DRI-STAT.

NAME.....

TITLE.....

ADDRESS.....



NEW CHEVROLET TRUCKS

have what it takes to boost efficiency and bring down costs!

In the next three paragraphs you'll find a few good reasons why you can get more work out of a Chevrolet truck and save money doing it.

INCREASED POWER IS THE FIRST BIG REASON

With Chevrolet's higher compression ratio you've got more power under the hood. Power that results in greater acceleration and hill-climbing ability. Faster starts and acceleration over the day's work save valuable time and increase over-all efficiency. Check the gas mileage, too. With this higher compression ratio, your Chevrolet truck registers *more miles on the job* for each tankful of gas. That's where you start to save money.

BUILT-IN RUGGEDNESS SAVES EVEN MORE

The strength and stamina of more rigid frames, and the special chassis features that pertain to each model—these combine to add extra ruggedness to your Chevrolet truck. Push it hard on the rough jobs; keep it going over long schedules—you'll still find your upkeep costs lower and your Chevrolet trucks lasting a lot longer.

ONE LAST POINT—and maybe the most important to you—you'll find Chevrolet's line of trucks priced the lowest of all! Talk over your needs with your Chevrolet dealer. He'll give you the facts about the best model for your job. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

MOST TRUSTWORTHY TRUCKS

ON ANY JOB!



CHEVROLET ADVANCE-DESIGN TRUCK FEATURES

THREE GREAT ENGINES—The new "Jobmaster 261" engine* for extra heavy hauling. The "Thriftmaster 235" or "Loadmaster 235" for light-, medium- and heavy-duty hauling. **NEW TRUCK HYDRA-MATIC TRANSMISSION***—offered on ½-, ¾- and 1-ton models. Heavy-Duty **SYNCHRO-MESH TRANSMISSION** — for fast, smooth shifting. **DIAPHRAGM SPRING CLUTCH** —improved-action engagement. **HYPOID REAR AXLE**—for longer life on all models. **TORQUE-ACTION BRAKES** — on all wheels on light- and medium-duty models. **TWIN-ACTION REAR WHEEL BRAKES**—on heavy-duty models. **DUAL-SHOE PARKING BRAKE**—greater holding ability on heavy-duty models. **NEW RIDE CONTROL SEAT***—eliminates back-rubbing. **NEW, LARGER UNIT-DESIGNED PICKUP AND PLATFORM STAKE BODIES**—give increased load space. **COMFORT-MASTER CAB**—offers greater comfort, convenience and safety. **PANORAMIC WINDSHIELD**—for increased driver vision. **WIDE-BASE WHEELS**—for increased tire mileage. **BALL-GEAR STEERING**—easier, safer handling. **ADVANCE-DESIGN STYLING**—rugged, handsome appearance.

*Optional at extra cost. Ride Control Seat is available on all cabs of 1½- and 2-ton models, standard cabs only in other models. "Jobmaster 261" engine available on 2-ton models, truck Hydra-Matic transmission on ½-, ¾- and 1-ton models.



The NEW TORNADO®

More Versatile Cleaning From Floor to Ceiling

This new Tornado cleaner brings you even greater cleaning power and longer life . . . with air speeds up to 325 M.P.H. 3 sizes: $\frac{3}{4}$ H.P., 1 H.P. or $1\frac{1}{2}$ H.P.

Tornado picks up all dirt, dust, chips, oil or other liquids without any conversion.

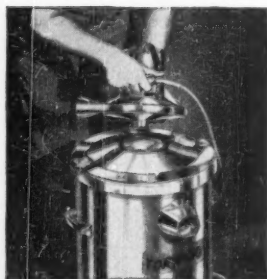
The powerful motor unit removes from the cover with a simple $\frac{1}{4}$ turn. The same motor unit can then be used for:

- ① A pack-carried vacuum cleaner
- ② A powerful portable electric blower
- ③ 'A jumbo cleaner for use with a standard 55 gal. drum

No matter what your cleaning job—Tornado will do it better and faster—run for hours & hours of constant duty under the worst conditions.

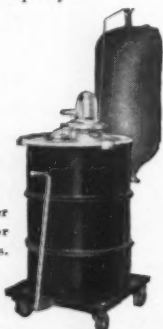
Write for Bulletin 660

We'll be glad to demonstrate in your company—just tell us where and when.



$\frac{1}{4}$ turn removes motor unit.
All sizes interchangeable.

Motor unit & adaptor cover
fit any standard drum for
doing the big cleaning jobs.



BREUER ELECTRIC MFG. CO.

5106 North Ravenswood Avenue

Chicago 40, Illinois



cials. The copy themes will be picked up in consumer and trade press ads. End-product manufacturers are being urged to tie-in their own campaigns with the same themes.

• **Discount Directory.** Hoge, Farrell, Inc., New York City publisher, has taken the plunge. They figure that discounters are a \$5 billion market and that there may be more interest in the market's whereabouts than many manufacturers and distributors are willing to admit—publicly. Price is \$9.95.

• **Consumer survey at home.** E. I. du Pont de Nemours & Company pulled a fast one on traditional market research and saved some money while doing it. Rather than constructing an expensive survey, the company simply polled about 2,000 of their employees in different plants and states. Among other things, they found out that tops in preference for new purchases is air conditioners; second place, freezers.

• **How magic is research?** Plenty, if you can afford it. That's what the research director of Universal Oil Products Company, DesPlaines, Ill., Gustav Egloff, told members of the American Chemical Society. Says Egloff, "The chance that a specific research investigation will result in a large enough financial return to cover its costs is considerably less than even. The over-all profit from research results from an occasional project producing results of such value to more than offset the cost of a number of failures."

• **Integrated selling.** That's what the New Departure Division of General Motors calls its new sales approach. Selling antifriction ball bearings, management discovered, calls for more than a sales engineer in a purchasing agent's office. New Departure now sends out a team of sales, quality, application, and production engineers to a prospect. The customer matches them with a similar team and the two units try to solve problems on the spot.

• **Sales meeting twist.** Eastman Chemical Products' last sales meeting used a technique that's not new, but good, and seldom done. Along with conventional product sessions, management introduced American Cyanamid's general purchasing agent—a customer—who laid on the line what a p.a. expects from a salesman.

You should know

in INDUSTRIAL COLORADO
—distribution center of America—
there are 7 major railroads,
5 airlines, 100 trucking firms!

SITE FACTS:
Write for Free
Detailed Analysis,
"Industrial Colorado"

Colorado Department of Development
14 State Capitol
Denver 2, Colo.

COLORADO CLIMATE...THE MAGIC INGREDIENT

UGH!

"DRAG 'EM ON THE BOTTOM"
with old-style filing folders
OR—
"GLIDE 'EM AT THE TOP" with

FASTEST, EASIEST FILING EVER!

Oxford PENDAFLEX®
HANGING FOLDERS

Oxford Filing Supply Co., Inc.
88 Clinton Road, Garden City, N. Y.
Please send free Pendaflex catalog to

NAME _____
STREET _____
CITY _____

Sometimes it's easier to cut costs than to increase sales



— and it can be a lot more profitable!

Men of imagination will be quick to grasp the profit possibilities of this statement:

A 5% cut in the cost of your product can equal—in net profit—a far greater (and possibly unattainable) increase in sales.

If you ship in corrugated containers, we can help you cut your product cost 5% — by cutting your packing and shipping costs 30-35%. Since packing and shipping costs often equal 15% of product cost, this represents a real opportunity to increase your net profit.

A new, Colt-developed method of packing and shipping has made your present packing ma-

terial procurement, handling, and warehousing system antiquated almost overnight. This revolutionary idea solves all these costly problems:

Large corrugated container inventories. It increases turnover from 4 to 24 times a year, freeing capital.

Wasted storage space. It saves up to 90%, requires only 1600 square feet.

Container obsolescence. You never carry over cartons obsoleted by product change.

Shutdowns and delays. You always have the exact size carton when you need it.

Unnecessary purchasing costs. With fewer requisitions, filled at the stockroom level, not through

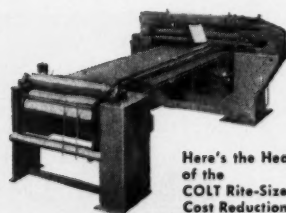
your purchasing department, you cut purchasing costs up to 75%.

Wasted warehouse and transit space. You eliminate oversized cartons stuffed with dunnage.

Poor packing. Well engineered containers fit the product, eliminate breakage, improve customer relations.

Disposal costs. You even salvage incoming cartons, fabricating usable containers at a saving of up to 90%.

We can prove every one of these statements with actual evidence from the experience of many companies like yours. Find out how much you can save with Colt's Rite-Size Cost Reduction Plan. Use the coupon below.



Here's the Heart of the COLT Rite-Size Cost Reduction Plan

Fully automatic machine slots, scores, cuts off, and imprints box blanks from corrugated sheet stock—to almost any desired size. Complete dimensional change in less than 90 seconds. High production rate. Rugged Colt-built dependability.

**Rite-Size
EQUIPMENT**
manufactured by



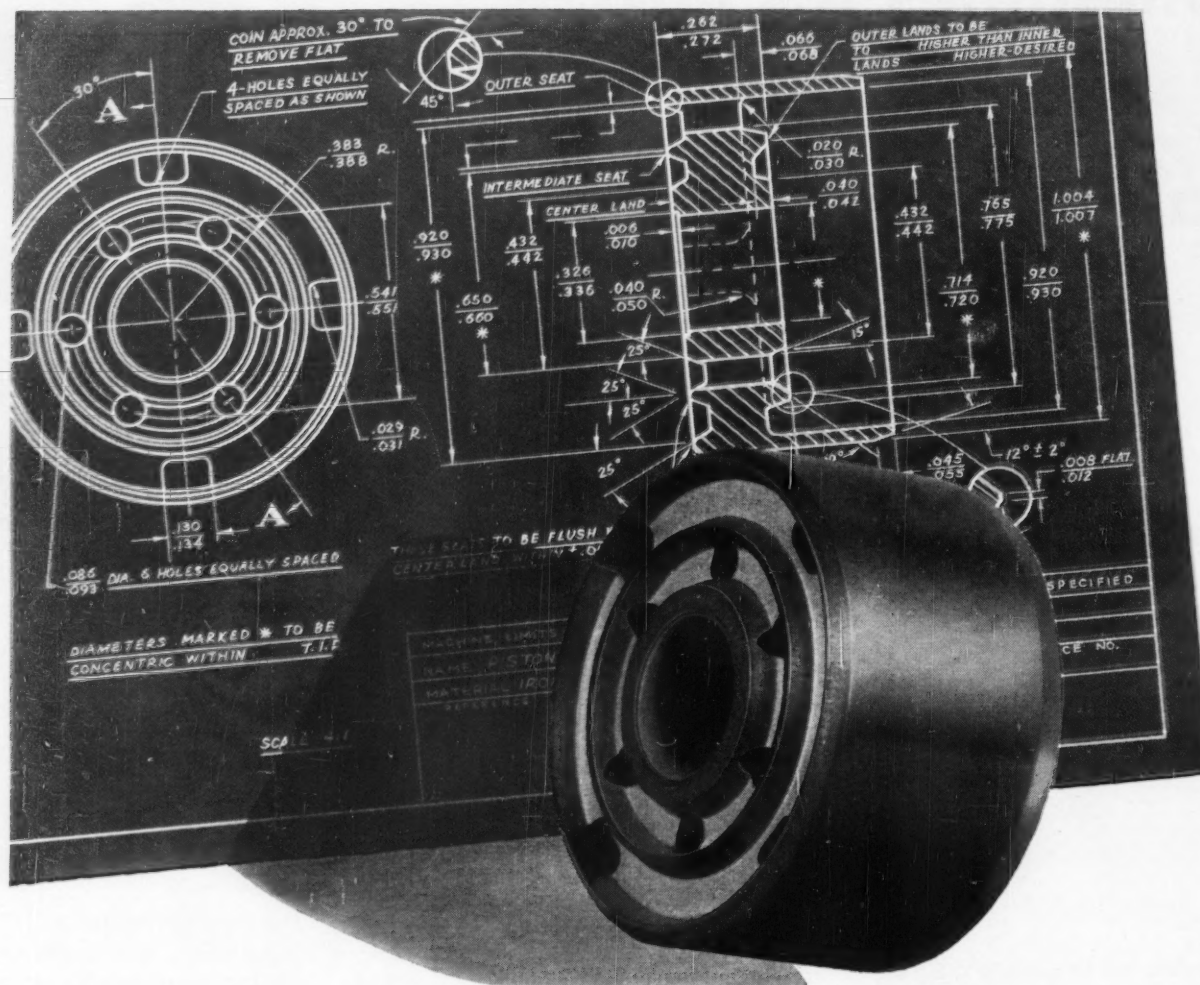
Makers of famous Colt Handguns
Autosan Dishwashing Machines
and Molded Plastic Products

COLT'S MANUFACTURING COMPANY

Packaging Machinery Division
1102 Huyshope Ave., Hartford 15, Conn.

Tell us more about Colt Rite-Size Equipment. Send complete information and graphic presentation.

Name _____ Position _____
Company _____
Address _____
City _____ Zone _____ State _____



MORAINE MAKES MANY COMPLEX PARTS IN ONE OPERATION

A design can be so complex that the cost of making it by conventional casting and machining methods would be prohibitive. Yet, that same design can be produced by the Moraine metal powder process at moderate cost—usually in one press operation—with no drop-off in quality or precision.

For example, this part, of intricate design and close tolerances, is made in quantity every day at Moraine with very noticeable

savings to the customer. It illustrates how much can be done to improve performance and cut costs when customer and Moraine cooperate to adapt part to process.

Moraine's experience with powder metallurgy is extensive and the possibilities it offers to modern industry are almost limitless. There are very few design ideas that cannot be profitably converted into practical parts by the Moraine metal powder process.



**moraine
products**

DIVISION OF GENERAL MOTORS CORPORATION, DAYTON, OHIO

**METAL
POWDER
PARTS**

Here and There in Business

WHAT'S NEW

AS OBSERVED BY THE EDITORS

Is there a new material that could make your product more attractive, more durable, easier to produce? Are you getting full value from established materials like copper, aluminum, steel, and ceramics? Your designers and engineers will be able to find out, and make on-the-spot comparisons of different materials at the Third Basic Materials Exposition, scheduled for next May 31 to June 3 (1955) at Philadelphia's Convention Hall.

Judging from the two previous shows, exhibits, while built specifically for designers and engineers,

will have plenty of ideas for sales managers, purchasing agents, and other members of the management team. It should be worth attending. Full information, for prospective exhibitors as well as visitors, may be obtained from the exposition management, Clapp & Poliak, Inc., 341 Madison Ave., New York 17, N. Y.

A management tool, as well as a vital means of communication. That's what Royal McBee Corporation calls the typewriter—and it's backing up that statement with a

HOW FAMOUS MIDWEST FIRM streamlined I. B. M. system operations with Island Unitized Conveyors



Organizations faced with an ever-increasing work load in their clerical department will find this free folder of inestimable value. It shows how one nationally famous firm converted their entire billing department into a smoothly integrated system which not only produced greater efficiency, but boosted morale as well, by eliminating the tension frequently induced by the visible reminder of mountains of unfinished work. Unique flow charts give details as to how a similar system could be developed for your own particular needs. Write for your free copy today.

**ISLAND
EQUIPMENT CORP.**

27-01 Bridge Plaza North • Long Island City 1, N. Y.

PACEMAKERS OF PROGRESS IN CONVEYING AND MATERIALS HANDLING

YOUR OFFICE an index of your executive achievement



STOW & DAVIS

EXECUTIVE FURNITURE MANUFACTURERS
GRAND RAPIDS, MICHIGAN

this NEW IDEA was good...but only after "proof by practice"

Until a year ago, it was usual practice on duplicate chucking work like these pieces to determine total floor to floor time by the dexterity of the machine operators—costs necessarily had to be figured on a high average of man hours due to operator fatigue.

Then came our entirely new approach—fully automatic control of cycle time—on the brand new

12"-UNIVERSAL

MODEL MC ACME-GRIDLEY

Single Spindle Automatic Chucker

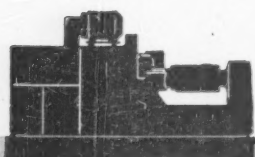
All operations in the machine setup are completed *automatically* at a *pre-determined* rate on piece after piece all day long—no time loss between loading and unloading.

This innovation, plus automatic selection of up to 6 spindle speeds and 3 feeds during the machine cycle with each set of change gears, made practical the best use of carbide tooling—or combinations of carbide and high speed—for the fastest cycle time.

Now the PROOF: After heavy duty performance on a broad variety of chucking jobs, the floor to floor time was documented on many jobs at 5 times as fast—none at less than 3 times as fast—as was possible by the former methods.

If your shop would benefit by similar guarantees in net gains, why not look at this newest Acme-Gridley? General bulletin is MC-53.

Remember: You can't do **TODAY'S** job
—with **YESTERDAY'S** tools... and make a
profit **TOMORROW**.



ACME-GRIDLEY
BAR and CHUCKING AUTOMATICS
(1, 4, 6, and 8 Spindle)—Hydraulic Thread
Rolling Machines—Automatic Threading
Dies and Taps—Limit, Motor Starter and
Control Station Switches—Solenoids
Contract Manufacturing.



SEMI-FINISHED COLLET
5 1/8" dia. 4160 Steel
Old Method, 65 min.
MC Method, 13 min.



BEARING RETAINER
9 1/4" dia. Lumen alloy
Old Method, 17.3 min.
MC Method, 6.0 min.



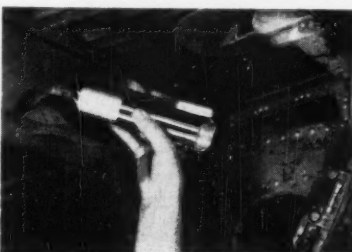
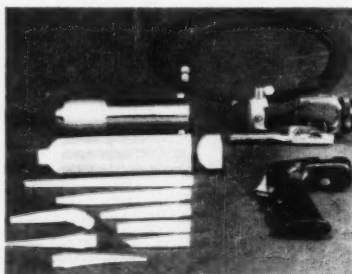
FINGER BODY
6 3/4" dia. Semi-steel
Old Method, 39.2 min.
MC Method, 11.2 min.

The NATIONAL ACME COMPANY

170 EAST 131st STREET • CLEVELAND 8, OHIO

new electric model specifically designed to increase productivity and cut costs. On the new Royal Electric, paper feeding and locking, horizontal and vertical spacing, underscoring and hyphening, are all automatic, and operate at a speed of more than 100 characters a minute. The carriage itself makes a round trip in less than two seconds, and the touch is said to be unusually fast and light. The new typewriter will be supplied in five standard colors (gray, green, ivory, rose, and blue), with other shades obtainable on special order.

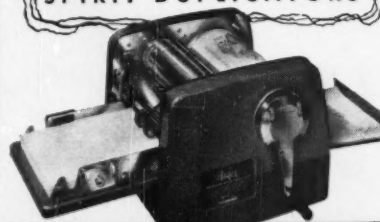
New gun for applying sealants and caulking compounds takes advantage of aluminum, stainless steel, and polyethylene plastic to achieve light weight plus durability. Though it weighs less than



seventeen ounces, it's said to hold as much as 30 per cent more than guns of conventional design. The upper photograph shows the gun's component parts. The lower photograph points up another of its advantages—removability of the handle for work in close quarters. Douglas Aircraft Company developed the gun, and has assigned manufacturing and sales rights to Semco Research, Inc., Inglewood, Cal.

Integrated Data Processing is a phrase you'll be hearing more and more. It's a system that joins "native language" machines (typewriters, adding machines, and the like) to automatic and electronic equipment in order to eliminate high

Heyer CONQUEROR SPIRIT DUPLICATORS



**PRINT hundreds of FAST,
CLEAN PERFECT COPIES**

- IN MINUTES
- IN 1 to 5 COLORS

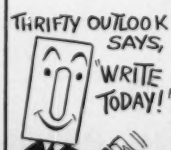
Now, you can make 120 or more copies per minute of anything up to 9 x 14 inches in size — typed, written, drawn, traced or ruled — in 1 to 5 colors. All in one easy, inexpensive operation. The Heyer Conquerors, Manual and Electrically Operated, are the duplicators with ALL the features... priced much lower than comparable machines.

Model 70-Hand Operated—\$195 (plus tax)
Model 76-Automatic Electric—\$325 (plus tax)
Write today for FREE descriptive literature
and name of your nearest dealer—to:

THE HEYER CORPORATION
1848 S. Kostner Ave., Chicago 23, Ill.



Positively opaque, they keep salary figures confidential—away from prying eyes. Only name shows through Outlook feature. No addressing, saves more than envelope cost. No chance of paychecks getting to wrong people.



Send one of your checks or facsimile. We'll submit a "Paycheck Outlook Envelope" to fit your checks and quote prices. No obligation!

OUTLOOK ENVELOPE COMPANY
Originators of "Outlook" Envelopes. Est. 1902
1005 WASHINGTON BLVD., CHICAGO 7, ILL.

"Working Money" that doesn't play hard-to-get!

There's no good reason...

why any going business should get fouled up in a financial tangle for lack of working money.

Contrary to many beliefs, money is easy to get...without borrowing that entails red tape and restrictions...if you have good products and good prospects.

ACTUALLY, by following our "working money" program, you can put your business on a cash basis, have all the capital you need for current operations or expansion, simplify your bookkeeping and eliminate credit and collection troubles.

Our type of financing service, available to manufacturers and wholesalers in almost every line

of business, provides a continuous reservoir of cash by the simple process of defrosting your frozen assets...the capital you have tied up in receivables and inventory...the money that *should* be working for *you*, but isn't.

WHETHER your needs are in six figures or seven...hundreds of thousands or millions...we'll be glad to give you a working program that you will find efficient, economical, profitable...and free from any interference with your management policies.

WHY NOT 'phone or write us today for information? Confidential, of course, and no obligation.



Textile Banking Company, Inc.

Financing Leading Firms in Many Fields of Industry
55 Madison Avenue • New York 10, N. Y.

neenah says...you've spent
your life gathering the ideas
you put into your letters...



why not spend a fraction of
a penny more to put
those expensive ideas
on a fine rag
bond by
neenah?

The
traditional
firm, crisp feel of a
fine rag paper will lend
prestige to your
message. The brilliant, blue-
whiteness of Neenah papers will
command attention at a glance.
Ask your printer for samples of fine rag
paper by Neenah. They are
expressly designed to give
your business stationery
strength, permanence and prestige.

To plan business stationery that is **PREFERRED**,
ask your printer for a free copy of the "Neenah
Guide to Preferred Letterheads." This exceptional
book is based on a four-year survey that deter-
mined what businessmen preferred in letterheads.

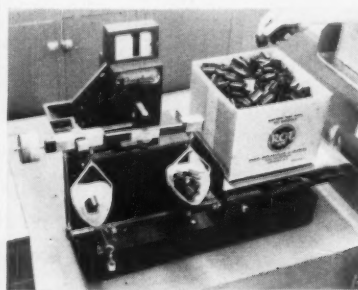


NEENAH PAPER COMPANY • Neenah, Wisconsin

costs of data duplication. Among
the new machines adaptable to this
process is the Friden Add-Punch
unit, said to be the first adding ma-
chine with a tape-punch mecha-
nism, made by Friden Calculating
Machine Company, San Leandro,
Calif.

As items are entered on the add-
ing machine tape, selected data can
be automatically punched on a five-
channel code tape. The code tape
may then go directly to a card-
punch machine, or may also be read
by any unit that has a tape read-out
mechanism that can send it out
over long-lines communication sys-
tems to other offices and plants.

New counting scale, featuring
electronic controls, is designed for
counting at ratios as high as 1,000
to 1. Weight of reference sample
(left) is used as a bench mark
against which to weigh—and thus
count—a quantity of parts placed
at the other end of the balance



(right). The photograph here
shows the basic model, C-200, but
the manufacturer, National Store
Specialty Company, P. O. Box 536,
Lancaster, Pa., notes that it can be
adapted to meet a wide variety of
conditions and to fit into automatic
packaging lines.

The research that backs a
product is certainly at least as im-
portant as the label which fronts it.
Yet too many companies, while
promoting the results of research,
relegate the research department it-
self to the back room—to be
brought forward only on the rare
occasions when a new building is
dedicated, or something of that
sort. That makes Colgate-Palm-
olive Company's recent decision to
publicize its research laboratories
on a continuing basis a news-
worthy event.

Kickoff for the new program
was a press conference telling the
story of C-P's work with radioiso-



**THEY'LL
CARRY YOUR NAME
WHEREVER THEY GO...**

Mr. Big—Mr. Little—Even Miss Secretary—Everyone
likes to carry lucky money—and when that lucky
money is securely fixed to a stainless steel money clip
with your name—or advertisement up to 20 letters—
stamped on the reverse side—they keep the silver
dollar money clip and your name with them at all
times. Personalize it by engraving their name on the
back—Packed in individual gift boxes.
STYLE No. 8069 Incl. 50 100 250 500 1000
Silver Dollar* 3.25 2.60 2.20 2.10 2.05



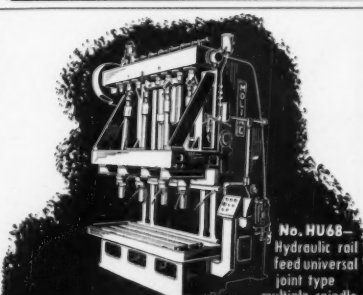
*Includes 20 letters of copy. For each
additional letter add 1.35. Individual
names engraved at 50c per name.

METAL ARTS CO. INC.

742 Portland Ave. • Dept. 45 • Rochester 8, N. Y.

**AN EXECUTIVE WHO CAN MAKE
YOUR BUSINESS MORE PROFITABLE**

Over 20 years as a successful Midwest at-
torney, I find practicing law comparatively dull.
I have learned a good deal about successful
business and have a good grasp of economics,
law and tax regulations. More important, I
know practical psychology and how to get
along with people. If your business appeals to
me and you like what I tell you during a per-
sonal interview, I'll consider a salary of \$15,000.
If you think this training can be of value to
your business, write Box 101, Dun's Review
and Modern Industry.



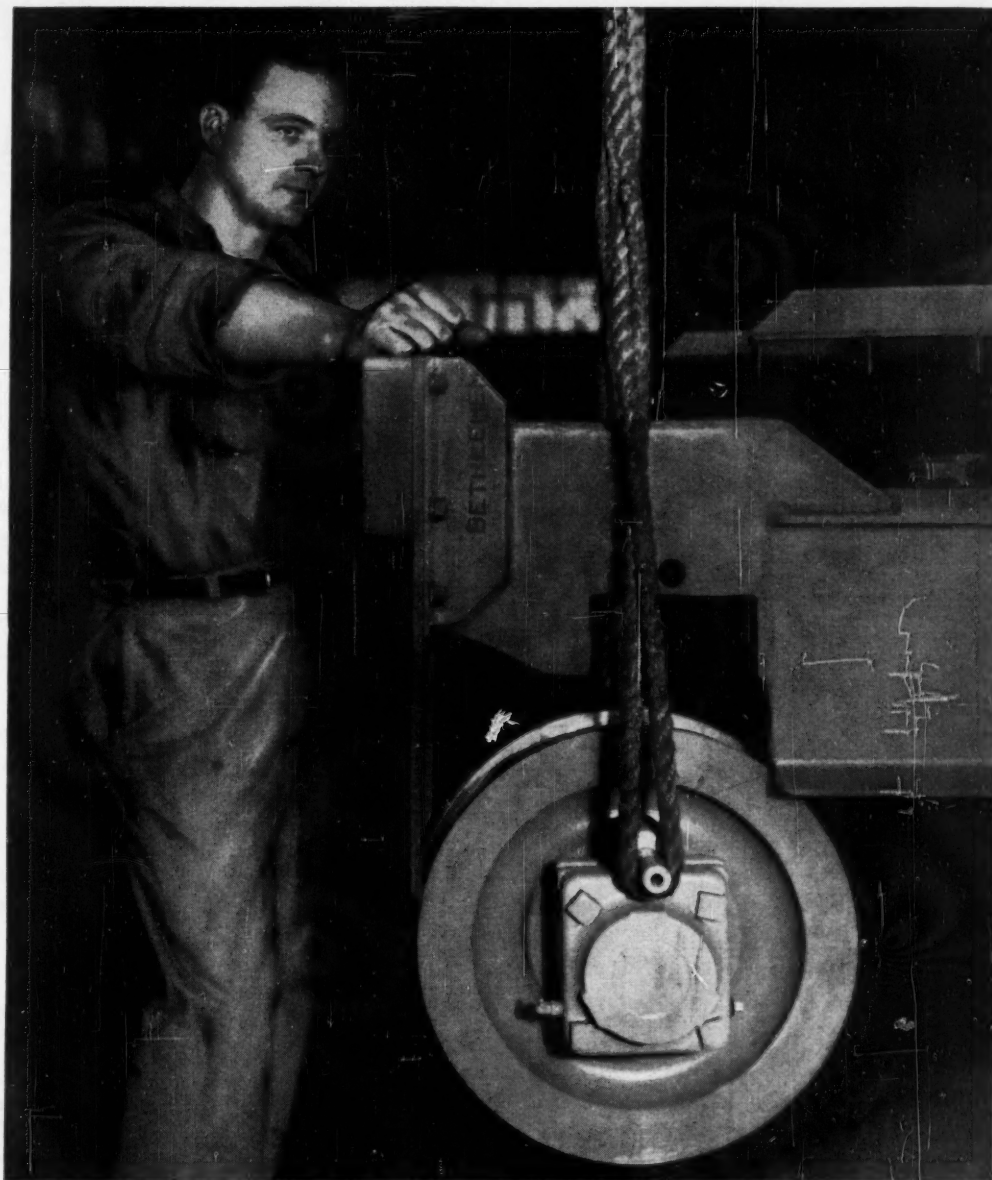
MOLINE "Hole-Hog"
Specially Designed
MACHINE TOOLS



have cut production
costs for American
Industry.

DUN'S REVIEW AND MODERN
INDUSTRY will appreciate early
notices of change of address.
Usually, it is necessary to have
four weeks' notice. Please in-
clude the old address.

The Blanks with Extra Strength... yet not a pound of surplus weight



On this page are shown several uses of Bethlehem forged-and-rolled circular blanks. All these applications require high strength. Yet in each case it is desirable to eliminate needless weight. That's why Bethlehem blanks are the logical choice, for they do have high strength without so much as a pound of surplus weight.

Reason: the blanks are made by a process that combines the steps of forging and rolling in a single operation, thereby assuring the density of forged metal and the good grain flow and structure of a rolled product. Result: unusual stress-resistance. Because of this characteristic, customers have fre-

quently found it possible to use thinner sections than they formerly specified.

End products made from these blanks include spur, bevel, and herringbone gears, crane-track wheels, sheave wheels, clutch drums, flywheels, turbine rotors, tire molds, and similar parts. The blanks are available in a wide choice of sections, and they can be furnished untreated or heat-treated, as you prefer. Sizes range from 10 to 42 in. OD.

Why not investigate? It could be the first step toward a stronger product . . . and important shop economies we'll be glad to tell you about.

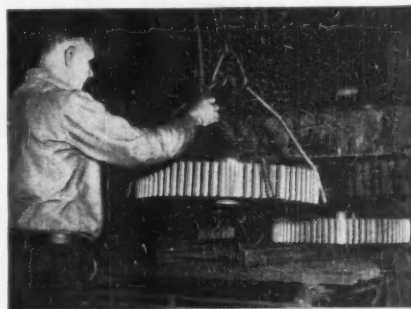
BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

*On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation
Export Distributor: Bethlehem Steel Export Corporation*



▲ Easy to machine, forged-and-rolled blanks are ideal for the making of sheave wheels.

◀ Crane-track wheels are made from Bethlehem forged-and-rolled blanks by Shepard Niles Crane & Hoist Corporation, Montour Falls, N. Y. The customer cites the longer life of these wheels, and their strength and shock-resistance — qualities valuable in the heavy-duty machines built by the company.



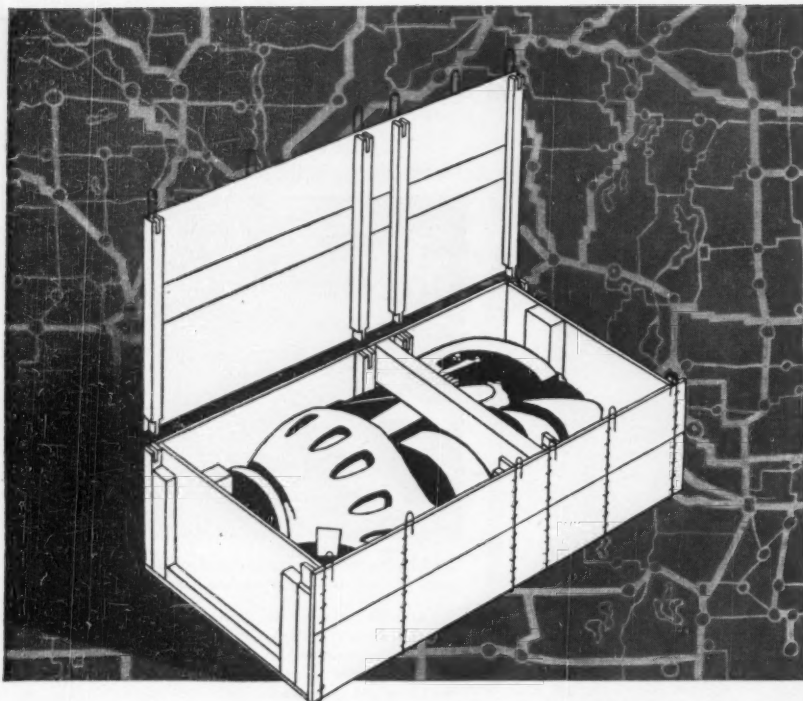
▲ Another common end use: gears.



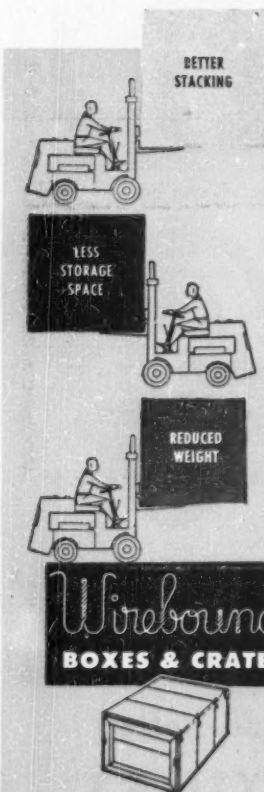
BETHLEHEM

Forged-and-Rolled

CIRCULAR FORGINGS



No matter where it's bound **SHIP IT WIREBOUND!** and Slash Damage Claims



If damage claims are giving you trouble... look into Wirebound Boxes or Crates. Wirebounds give your product better protection because they are tailor-made for the contents — strongly built to take it. Their high strength steel and resilient wood construction absorbs jars and jolts — protects without adding costly weight. No matter what your product's size, shape or weight, Wirebound design flexibility provides countless combinations that will carry the most difficult loads. So, if you want to slash damage claims and assure safe arrival — be sure to ship Wirebound. Get the whole safety-in-shipping story from a Wirebound Sales Engineer.

MAIL THIS COUPON NOW!

WIREBOUND BOX MANUFACTURERS ASSOCIATION

Room 1151, 327 South La Salle Street, Chicago, Illinois

- ☐ Have a sales engineer give me the whole story
☐ Send me a copy of "What to Expect from Wirebounds"

Name _____

Firm Name _____

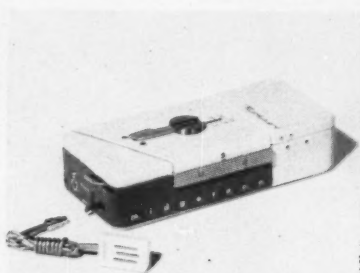
Address _____

City, Zone and State _____

topes in testing its new toothpaste ingredient, Gardol. And Dr. Thomas H. Vaughn, C-P vice-president in charge of Research and Development, promises news of many other phases of the laboratories' work as time goes on.

C-P researchers, incidentally, proved themselves adept at the art of movie-making, as well as product development. They showed a movie they produced themselves to acquaint production managers with "The Gardol Story." It ranks with the best of its kind, and represents a good idea for research-production liaison, too.

A *pocket tape recorder*, powered by hearing aid type batteries, cartridge loaded, and capable of recording for up to one hour, has been introduced by Mohawk Busi-



ness Machines Corporation, 944 Halsey Street, Brooklyn 33, N. Y. The Midgetape, which measures $8\frac{1}{2} \times 1\frac{1}{8} \times 3\frac{3}{8}$ inches, weighs a little over three pounds. Price is \$229.50 including cartridge, batteries, crystal microphone, and earphone.

Convenience gets another booster in Chicago Printed String Company, 2300 Logan Blvd., Chicago 47, Ill. Recognizing the fact that no product is any use to the distributor or consumer until he gets it out of its case, CPS has joined the trend toward easy-opening packages with a new Zip-Open tape for corrugated cartons. According to the company, its tape is not only easy to apply and use, but also unusually low in cost.

A *real service to industry* is performed by Weyerhaeuser Timber Company in releasing for general use its impressive study of "America's Demand for Wood: 1929-1975." Prepared by Stanford Research Institute specifically for

For those you
want to remember...



Truly... here are America's Finest Steaks... from Pfaltzer Brothers, Chicago. These Boneless Strip Sirloins are the same famous Pfaltzer Steaks served at America's exclusive clubs, leading hotels and fine restaurants. Graded U.S. Prime and aged to mellow perfection, these Blue Ribbon Steaks are a unique gift that will make a favorable impression. Packed 8 superb steaks, each $1\frac{1}{4}$ " thick, to attractive personalized gift box. Quality and perfect condition on arrival guaranteed.

BOX OF 8 STEAKS \$25.00*
SHIPPED PREPAID

*5% discount allowed on shipments of 12 or more boxes shipped to one address

ORDER TODAY

For other distinctive Pfaltzer gift items write for Catalog G-40



Pfaltzer Brothers, Inc.

UNION STOCK YARDS • CHICAGO 9, ILL.

Tachographs

will help you maintain
better schedules and
give a complete record
of every truck



chart
tells all!

- When Engine Started
- How Long It Idled
- How Fast It Traveled
- Distance Between Stops
- When Vehicle Was In Motion
- When Vehicle Stopped

Tachographs provide a charted, permanent record that aids in the efficient handling of valuable payloads and protects your costly rolling stock. Over-the-road vehicles that are equipped with Tachographs have fewer accidents... spend less time in the repair shops... save gas and tires... and earn lower insurance rates. Coupon below will bring complete information.

Drivers call them their Buddies
They protect drivers from false accusations and tell the dispatcher how vehicle is handled on every trip.



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COMPANY _____

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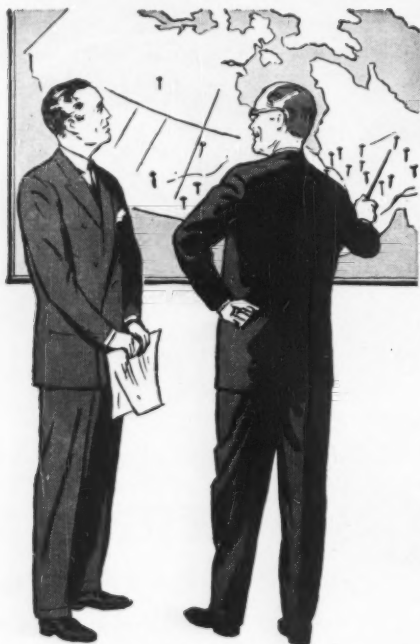
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554-9

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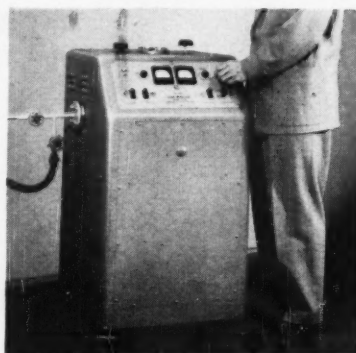
New York Agency—

68 William Street, New York 5, N. Y.

Total assets exceed \$2,800,000,000

Weyerhaeuser, the report contains a wealth of information on general economic and industrial trends, in addition to specific data on wood products. SRI foresees a steady increase in the major markets for forest products—construction, shipping containers, and manufacturing—but notes, too, that there will be increasing competition from other materials, particularly if lumber costs rise appreciably. An 80-page summary of the report, containing more than 30 charts and including a good deal of information on wood-using industries, may be obtained from the Department of Public Information, Weyerhaeuser Timber Company, Tacoma Building, Tacoma 1, Washington.

New leak detector for testing equipment that must be held to unusually close air-tightness specifications—electron tubes, containers for dangerous or costly gases, vacuum systems, and the like—is said to be ten times as sensitive as standard models. Consolidated Engineering

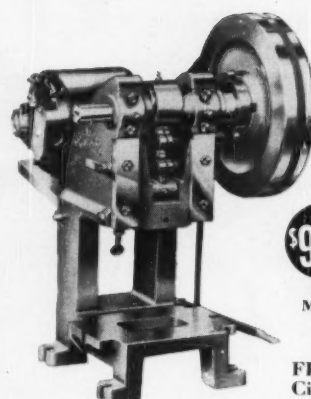


Corporation, Pasadena 8, Calif., the manufacturer, says it will detect one part of helium in two million parts of air, finding leaks that would pass a mere thimbleful of gas in two or three centuries.

Duplication of letters, forms, documents can be speeded and simplified by new developments like these:

A compact combination (recording and reading) microfilming unit, the Micro-Twin, has been announced by Burroughs Corporation, Detroit, Mich., and Bell & Howell Company. The unit, to be marketed by Burroughs, will photograph both sides of documents ranging in size from smaller than bank checks to single sheets 11 inches wide by 3,700 feet long.

A new white-printer that uses



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Motor

FREE
Circular

Dealer Inquiry Invited

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2-Ton Power Bench Type

Powerful, Dependable, Economical

For light work—stamping, forming, riveting—metal, fiber or other material.

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Requires only 1/2 H.P. motor.

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Order TODAY. Price \$97.50 F.O.B., Clinton, Mo. (Includes Motor bracket, V-belt, motor pulley, less motor)

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FASTER! Zip-zip! Fast as you grip. Tacks screens on TV-radios—plastic dial plates—gimp bindings on chairs, etc. etc.

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LESS COST! No waste! Tackpoints come in economical strips. A big saving in labor costs over old-fashioned tack hammer methods.

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New convenience, portability and speed combined with economy with Hansen VEST KIT. Modern way to carry handy supply of staples, 3/16" and 1/4" lengths.



Packed 5 Vest-Kits per Box of 5,000 staples.

36 Models
80 Staple Sizes



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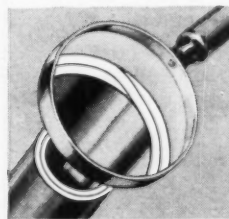


It's enough to give a duck goose pimples



Hidden lifelines of Bundyweld Tubing have helped maintain high standards of refrigerator and home freezer dependability for over 20 years. Refrigeration manufacturers, in their drive to provide top product performance, give you the unmatched protection of Bundyweld.

COMING FOR YOU: many mouth-watering, rib-clinging dinners featuring tender, succulent roast duck—thanks to your hunting skill, your wife's cooking magic, and the unsung miracle of dependable home freezing. **COMING FOR THE DUCKS:** weeks or months of unrelenting, bitter-cold storage in your home freezer, which may use up to 85 feet of leakproof Bundyweld Tubing to carry refrigerant gases so elusive that they can rush through openings invisible to the human eye.



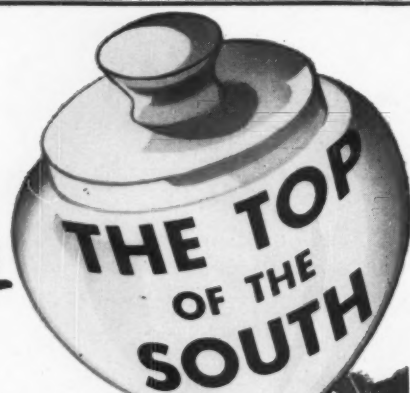
Bundyweld Steel Tubing is the only tubing double walled from a single metal strip, copper bonded through 360° of wall contact. Manufactured by the world's largest producer of small-diameter tubing, Bundyweld won't leak, will transmit heat efficiently.

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INDUSTRIAL
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Existing electric power facilities and those now under construction assure a plentiful supply of economical and dependable Electricity to meet all present and foreseeable needs here at "The-top-of-the-South."

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AREA DEVELOPMENT DEPARTMENT

VIRGINIA ELECTRIC AND POWER COMPANY

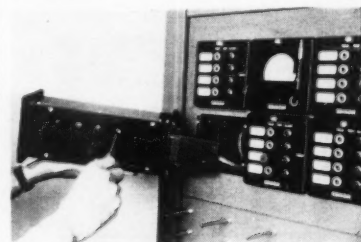
RICHMOND 9, VIRGINIA

the dry-ammonia method of reproduction is the Speedmaster "1400C," brought out by Peck & Harvey Manufacturing Corporation, 5640 North Western Avenue, Chicago 45, Ill. It is designed to handle any translucent originals, drawn, written, typed, printed, or photographed.

Another new whiteprint machine comes from Ozalid Division, General Aniline & Film Corporation, Johnson City, N. Y. This unit, Model 800, offers front or rear delivery of drawings and business forms up to 42 inches wide at speeds varying from 8 inches to 30 feet per minute, claims Ozalid.

A new Verifax Printer, Eastman Kodak Company, Rochester, N. Y., for handling papers and documents up through the legal size (8½x11 inches) features an exposing and activating timer and an independent feed to simplify print paper positioning.

Ease of installation, compactness, and flexibility are three of many advantages claimed by Thomas A. Edison, Inc., West Orange, N. J., for its *Omniguard* indicating and alarm system, designed to keep watch on the operating temperature of bearings on heavy



rotating machinery in power plants, steel mills, paper mills, and the like; to protect blast furnaces by checking water jacket temperatures; and for many other applications where control of temperature and protection against overheating—particularly in hard-to-reach spots—are important. Unitized design of monitor and indicator units makes it easy to build up a system of the desired size for any particular job, and to remove sections for servicing. This type of design, plus the plug-in feature that makes it possible for one monitor to serve several different points, also make this system far more compact than older ones, and less expensive, Edison reports.



Saves Typing Time . . .

Stops Eye Fatigue!

PANAMA "COPY-HOLDER" BOX

Panama-Beaver's exclusive patented carbon paper box has a built-in copy holder that flips open with a flick of the wrist. Keeps copy material upright and in full view . . . speeds work . . . cuts office costs. Folds up neatly under box lid after use. COSTS NOTHING EXTRA when you buy Panama-Beaver Carbon Paper—America's sharpest-writing, cleanest-erasing smudge-free carbon!

Have the Panama-Beaver representative near you show you the Copy Holder Box without obligation!



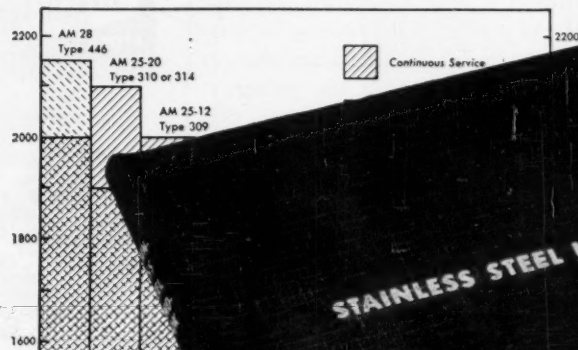
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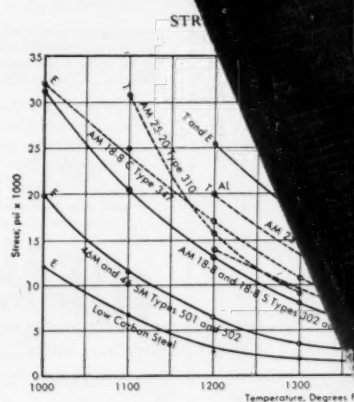
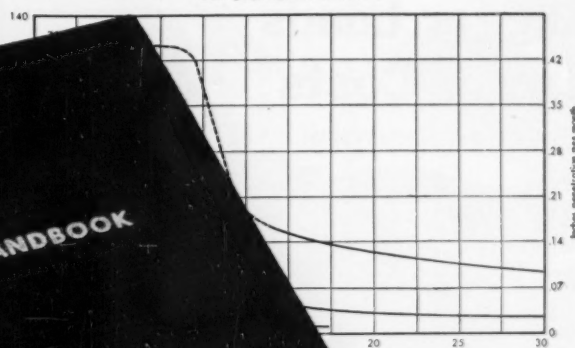
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properties and characteristics of each type will guide you in specifying grades that will do your job most efficiently. Clear, concise fabrication data will help you speed production and cut waste.

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Compact -
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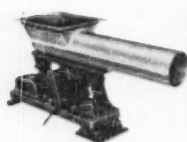
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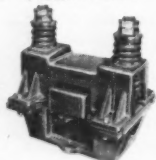
Additional SYNTRON EQUIPMENT That Helps Eliminate Many Tough Production Problems

VIBRATORY FEEDERS



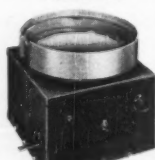
Assure positive, controlled feeding of bulk materials—from fine powders to coarse lumps—at controllable rates from a few pounds to tons per hour.

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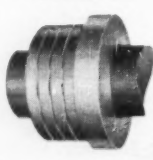
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shows, movies, speeches, and publications. This Diamond Jubilee celebration points up one—but only one—of the many vital uses for electricity in modern life. For news of other electrical developments, and the business opportunities they create, see page 31.

Adjustable bore gages, that can be set to desired dimensions and can "feel" their way into holes have been placed on the market by



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Thigh guards for football pants



Welder's glove cuff stiffener



Jewelry box padding



Slipper foundation padding



Garment interliners



Handbag body shaper



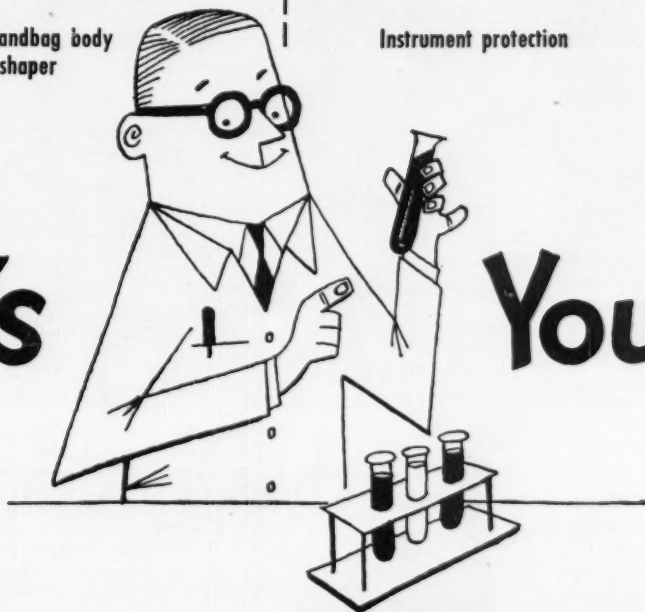
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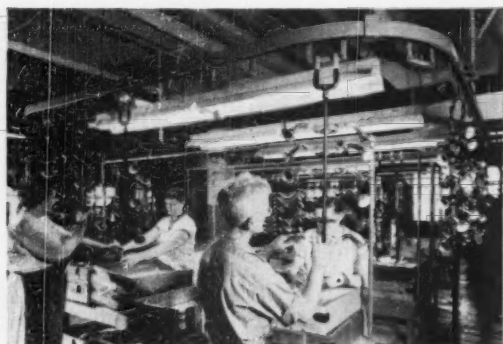
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Company.....

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*Increases production,
cuts rejects on plating line
with **R-W "Zig-Zag"**
Continuous Power Conveyors*



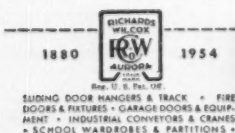
The Speakman Company, Wilmington, Delaware, faced with the problems of lowering costs and increasing production of chrome-plated plumbing fixtures, chose Richards-Wilcox "ZIG-ZAG" Continuous Power Conveyor to increase the efficiency of their plating line.

"ZIG-ZAG" Conveyors operate overhead—out of the way of production. Exceptionally flexible, they move up, down, in, out and around . . . carrying unit loads up to 125 pounds at varying speeds from one inch to sixty feet per minute. Six-inch carrier pendant centers make it an easy matter to adapt "ZIG-ZAG" to changing production requirements. The system may be easily altered or relocated by plant personnel, usually using all the parts.

"ZIG-ZAG" Conveyors are quality designed and manufactured. They offer longer, safer, more efficient service on any production line. Find out how "ZIG-ZAG" Conveyors can help you meet increased demand.

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Richards-Wilcox Mfg. Co.

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Sworn to and subscribed before me this 17th day of September, 1954.

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Milcor Steel Roof Deck plates interlock closely, providing roof surface that is adaptable to any type of insulation.



Available in lengths up to 20 ft. 3 in.

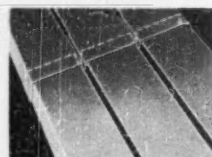
Milcor Steel Roof Deck gets you under cover fast. It can be erected anytime — in any weather a man can work.

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There are other advantages, also: Savings on structural supports. High strength-to-weight ratio. Fire resistance. Low maintenance cost.

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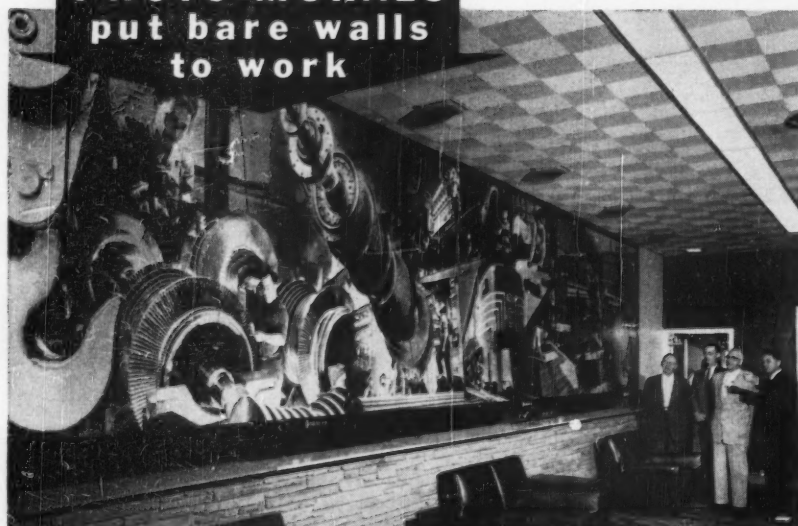


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DEFINITIONS OF TERMS USED IN FOURTEEN IMPORTANT RATIOS

THE RATIOS—The data used are based upon a representative sampling with a tangible net worth which only occasionally is below \$50,000. . . . The center figure for each of the twelve lines is the median. The other two figures in each line are quartiles; for each ratio they indicate the upper and lower limits of the experiences of that half of the concerns whose ratios are nearest to the median. When any figures are listed in order according to their size, the median is the middle figure (same number of items from the top and the bottom) and the quartiles are the figures that are located one-quarter and three-quarters down the list.

COLLECTION PERIOD—The number of days that the total of trade accounts and notes receivable (including assigned accounts and discounted notes, if any) less reserves for bad debts, represents when compared with the annual net credit sales. Formula—divide the annual net credit sales by 365 days to obtain the average credit sales per day. Then divide the total of accounts and notes receivable (plus any discounted notes receivable) by the average credit sales per day to obtain the average collection period.

CURRENT ASSETS—Total of cash, accounts and notes receivable for the sales of merchandise in regular trade quarters less any reserves for bad debts, advances on merchandise, inventory less any reserves, listed securities when not in excess of market. State and municipal bonds not in excess of market, and United States Government securities.

CURRENT DEBT—Total of all liabilities due within one year from statement date including current payments on serial notes, mortgages, debentures, or other funded debts. This item also includes current reserves such as gross reserves for Federal income and excess profit taxes, reserves for contingencies set up for specific purposes, but does not include reserves for depreciation.

FIXED ASSETS—The sum of the cost value of land and the depreciated book values of buildings, leasehold improvements, fixtures, furniture, machinery, tools, and equipment.

FUNDED DEBT—Mortgages, bonds, debentures, gold notes, serial notes, or other obligations with maturity of more than one year from the statement date.

INVENTORY—The sum of raw material, material in process, and finished merchandise. It does not include supplies.

NET PROFITS—Profit after full depreciation on buildings, machinery, equipment, furniture, and other assets of a fixed nature; after reserves for Federal income and excess profit taxes; after reduction in the value of inventory to cost or market, whichever is lower, after charge-offs for bad debts; after miscellaneous reserves and adjustments; but before dividends or withdrawals.

NET SALES—The dollar volume of business transacted for 365 days net after deductions for returns, allowances, and discounts from gross sales.

NET SALES TO INVENTORY—The quotient obtained by dividing the annual net sales by the statement inventory. This quotient does not represent the actual physical turnover which would be determined by reducing the annual net sales to the cost of goods sold, and then dividing the resulting figure by the statement inventory.

NET WORKING CAPITAL—The excess of the current assets over the current debt.

TANGIBLE NET WORTH—The sum of all outstanding preferred or preference stocks (if any) and outstanding common stocks, surplus, and undivided profits, less any intangible items in the assets, such as goodwill, trade-marks, patents, copyrights, leaseholds, mailing list, treasury stock, organization expenses, and underwriting discounts and expenses.

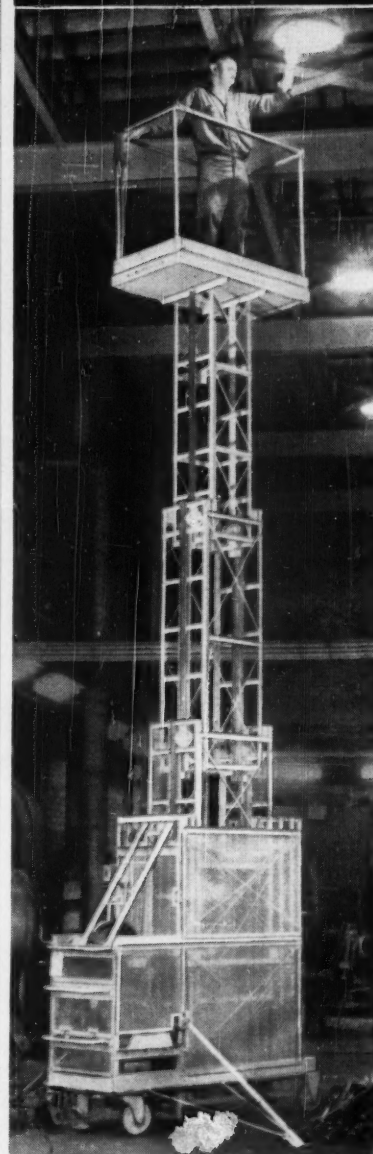
TURNOVER OF TANGIBLE NET WORTH—The quotient obtained by dividing annual net sales by tangible net worth.

TURNOVER OF NET WORKING CAPITAL—The quotient obtained by dividing annual net sales by net working capital.

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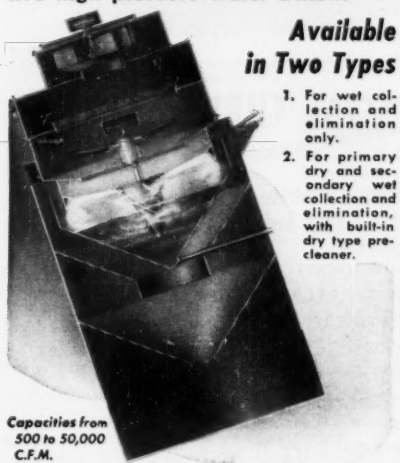
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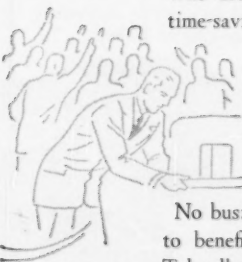
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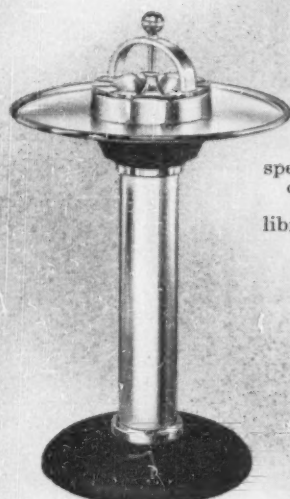
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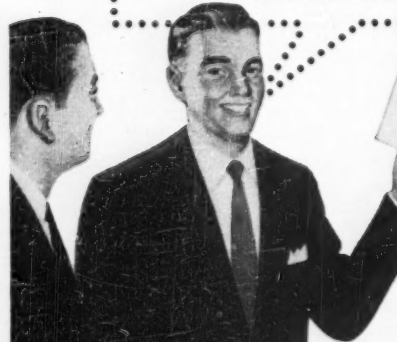


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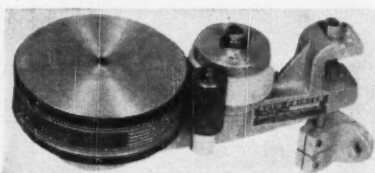
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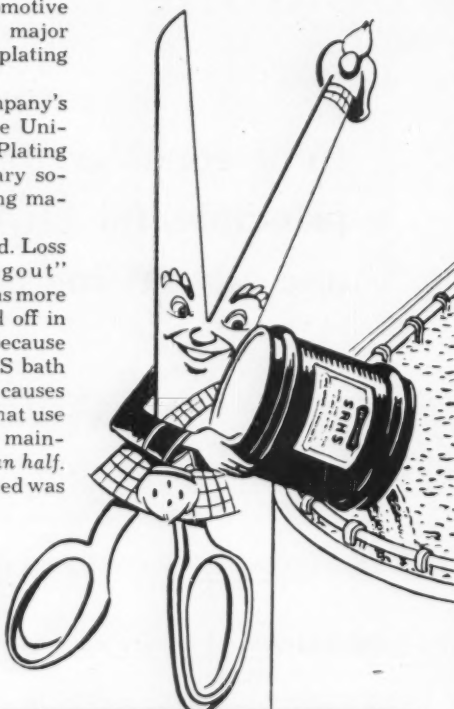
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Your best cancer insurance...

"LIFETIME" POLICY... See your doctor *every year* for a thorough check-up, no matter how well you may feel.

"DAY-TO-DAY" POLICY... See your doctor *immediately* at the first sign of any one of the seven danger signals that *may* mean cancer (1) *Any sore that does not heal* (2) *A lump or thickening in the breast or elsewhere* (3) *Unusual bleeding or discharge* (4) *Any change in a wart or a mole*

(5) *Persistent indigestion or difficulty in swallowing* (6) *Persistent hoarseness or cough, and* (7) *Any change in normal bowel habits.*

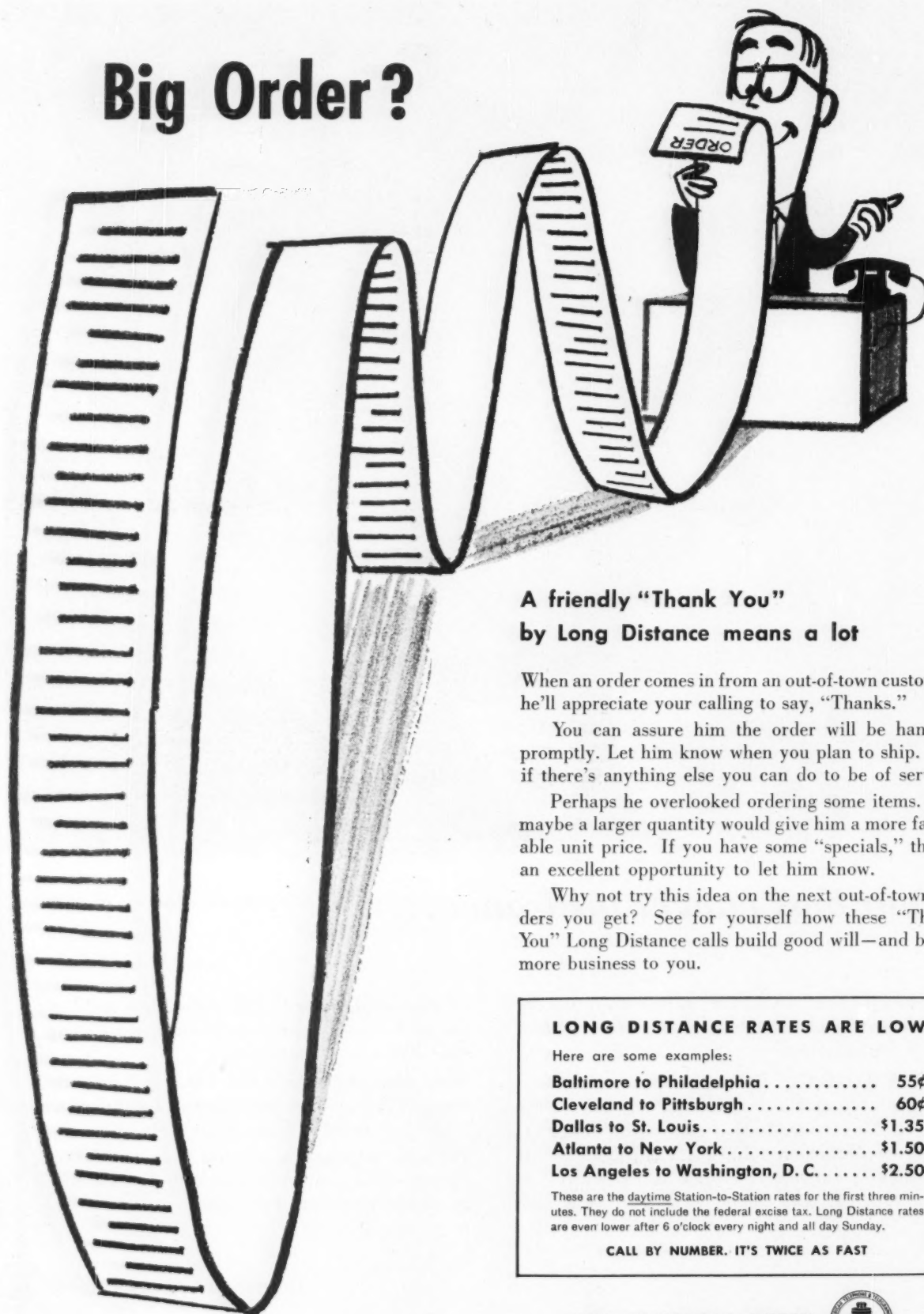
Many cancers can be cured, but only if properly treated *before* they have begun to spread or "colonize" in other parts of the body.

For more information, call the American Cancer Society office nearest you or write to "Cancer" in care of your local Post Office.

American Cancer Society



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When an order comes in from an out-of-town customer, he'll appreciate your calling to say, "Thanks."

You can assure him the order will be handled promptly. Let him know when you plan to ship. See if there's anything else you can do to be of service.

Perhaps he overlooked ordering some items. Or, maybe a larger quantity would give him a more favorable unit price. If you have some "specials," this is an excellent opportunity to let him know.

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Baltimore to Philadelphia.....	55¢
Cleveland to Pittsburgh.....	60¢
Dallas to St. Louis.....	\$1.35
Atlanta to New York.....	\$1.50
Los Angeles to Washington, D. C.....	\$2.50

These are the daytime Station-to-Station rates for the first three minutes. They do not include the federal excise tax. Long Distance rates are even lower after 6 o'clock every night and all day Sunday.

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Ceilings of BAKELITE Rigid Vinyl Sheets, hung below fluorescent lamps, bathe rooms

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BAKELITE Rigid Vinyl Sheets are available in clear transparent, or colored translucent and opaque. They come in several standard widths and thicknesses. Surfaces may have either a "calender," matte, or press-polished finish. For detailed information, write Dept. ZO-6.

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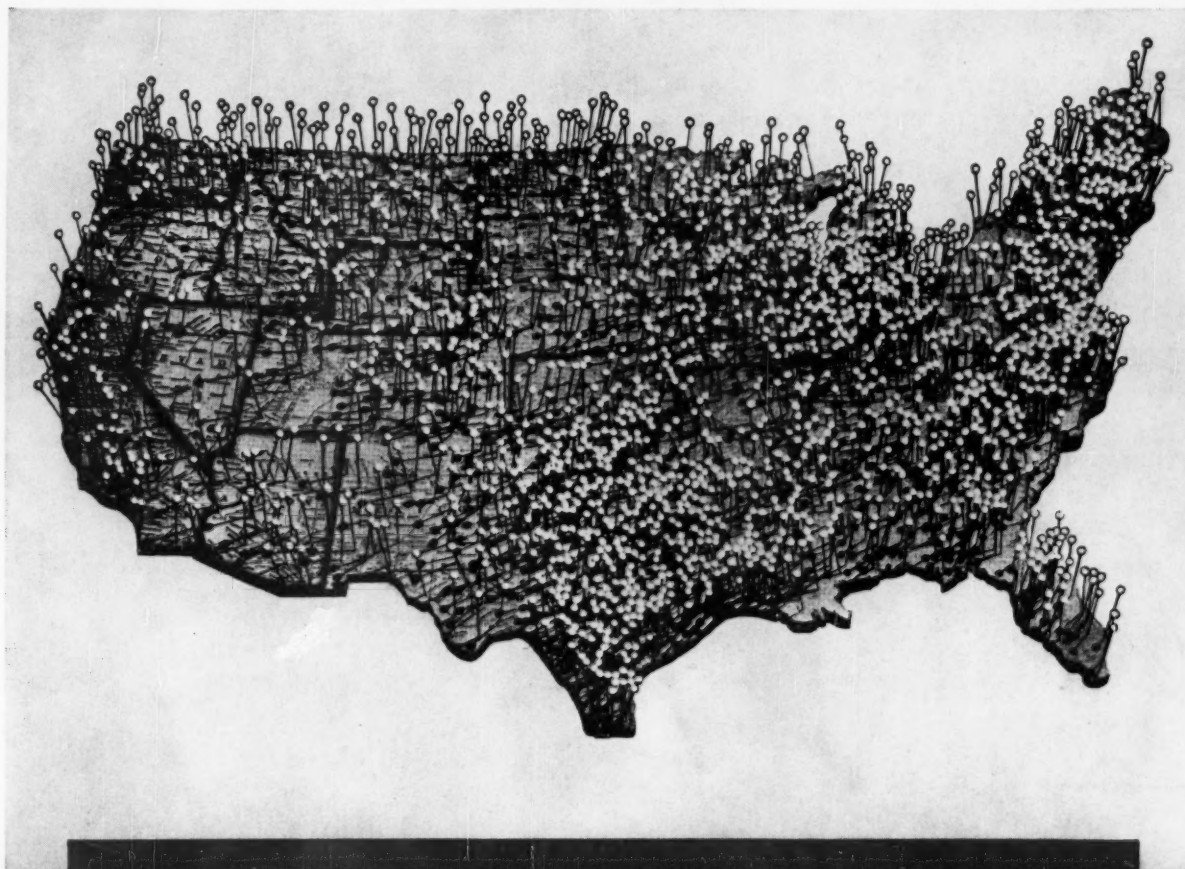
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